

Workbench

JANUARY
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1962

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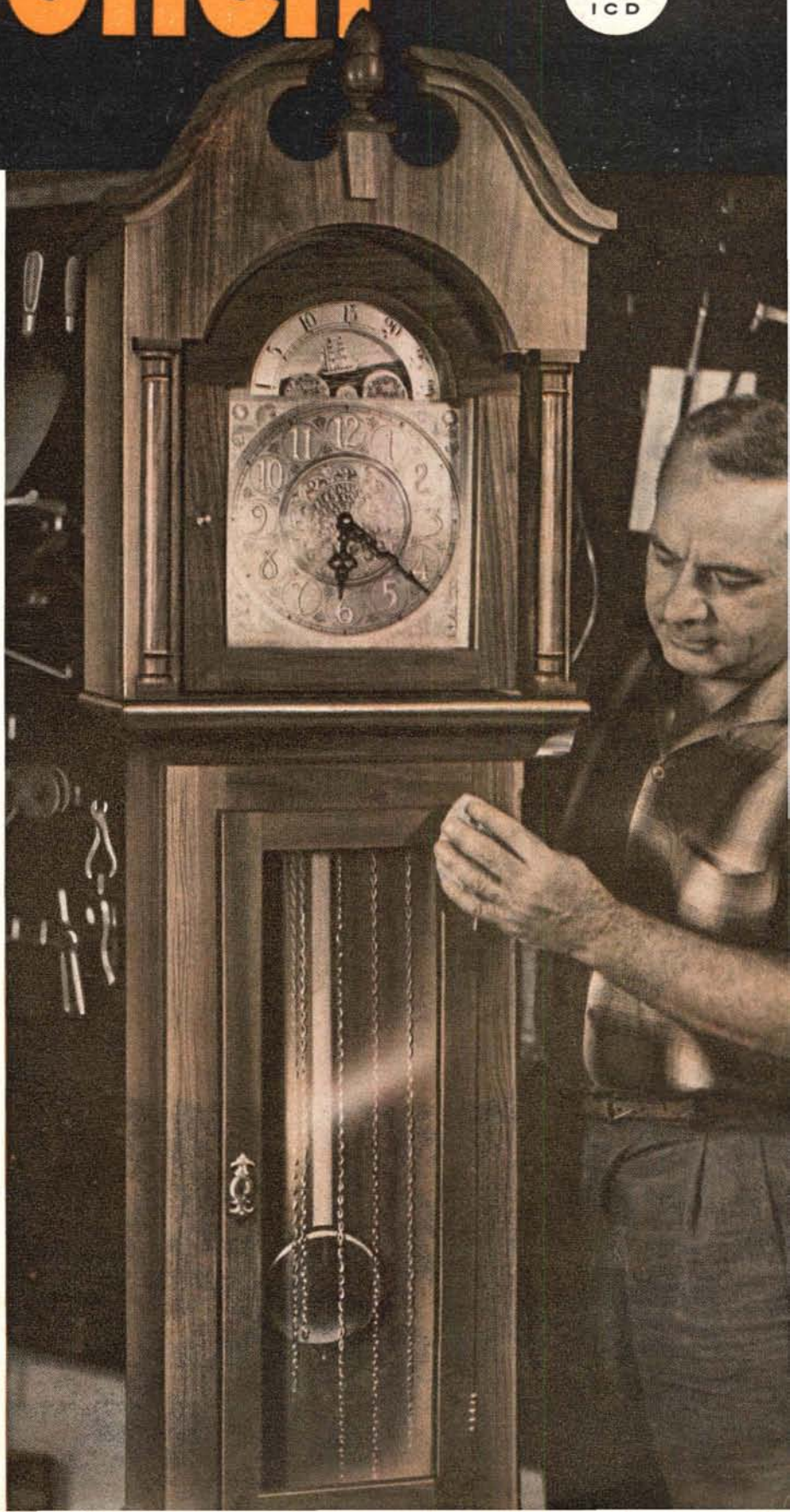
WORKBENCH BUILD A GRANDFATHER CLOCK

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of CB Station



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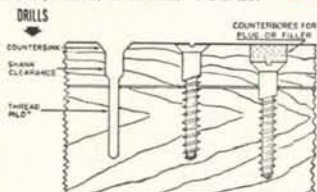
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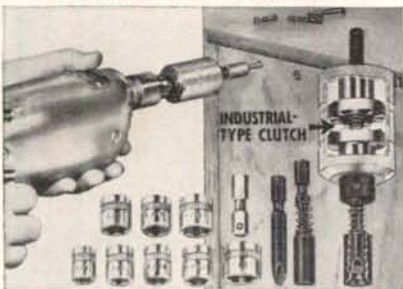
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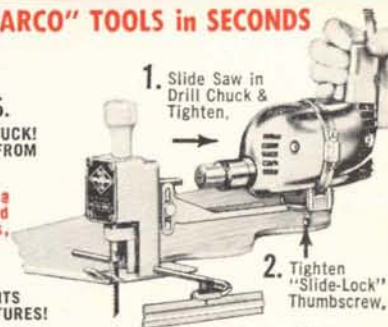
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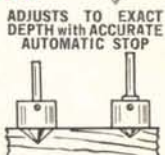
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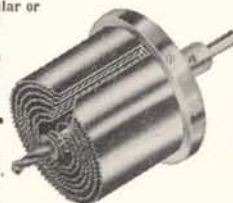
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- "Bargains" shows you how to MAKE MONEY.
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- "Bargains" is Bigger, Better than ever before.
- SEE TO BELIEVE!

Look What Subscribers Are Saying!

Here's What Subscribers say about "Bargains" After Receiving Their first copies!

"... Your book BARGAINS is just wonderful and I am very glad I subscribed to it."—H. K., Port Monmouth, N. J.

"... As a result of answering one of the ads (in Bargains) it has resulted in extra profits of \$40.00 and upwards per month."—J. H., Alabama.

"... I am very pleased with BARGAINS. I have never seen anything like it and am looking forward to my future copies especially the Christmas edition."—Mrs. D. M., Maine.

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"... I think BARGAINS is the best merchandise publication I have ever seen (And I have seen hundreds)."—S. P. C., Brooklyn, N. Y.

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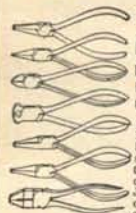
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WORKBENCH volume 18 number

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LETTERS TO THE EDITOR

Dear Mr. Hedden:

Been subscribing to **WORKBENCH** for a long time and my subscription is paid up far ahead. Am proud to state that your magazine was a great help to me in selecting my hobby after retiring in October, 1958. I'm filled with enthusiasm for the fascinating projects possible in wood-working. Enclosed is snapshot of some unusual chair-planters and a tiny table with inlay in the top. Thomas J. Brown, Bridgeton, N. J.



Dear Mr. Brown:

Thank you for the letter and snapshot. Those little rocking chairs are fascinating, indeed. If the design is original with you, would like drawings and a photograph, so our readers could duplicate them.

Dear Research Dept.:

In your Sept.-Oct., 1961 issue you told a reader that it is necessary to use an oil-base primer under exterior latex paint. This is not true. I am a paint dealer and handle exterior latex paints. One type requires a primer, (latex), the other is self-priming. Would like to see this letter published, as your theory on latex paint will not help sales on this paint in our store or others. Bob Hass, Milwaukee, Wis.

Dear Mr. Hass:

The field of latex paints (actually based on a diverse group of chemicals, not rubber), is developing so rapidly that there might be self-priming types and types that use a latex-base primer. However, in our latest research, and discussions with professional painters, we found that the use of an oil-base primer is recommended. It is agreed, that once a latex-base paint has been applied, no further priming is necessary when latex paint again is applied.

Nuia Aloha Oiaio: (Very Sincere Greetings).....

In the Nov.-Dec. issue there is a very fine drawing of an instrument erroneously called the baritone ukulele (the ukulele—ookoo-lay-lay), when brought in by the Portugese in 1840 was tuned like the steel guitar at the 3rd fret; namely from bass to treble, G, C, E and G. This was before the steel guitar. In 1846 a paniola (cowboy), on the Parker Ranch at Kamuela on the Island of Hawaii, tuned his guitar like the melody ukulele, tried a piece of shell to play it and the shell worked. He later tried a hardwood bar, finally a German-made metal bar; hence Hawaiian steel guitar.

Enclosed is a sample chart for playing the instrument. Several years ago I named this instrument (baritone uke), the Meluke, for Melody Ukulele. Around 1922 played for a Kansas City radio station, in 1926 received my Doctor's degree in music for a history of Hawaiian traditions and music, also for three compositions of my own. One was an overture, "Parade of Stars," one number was dedicated to my mother, Princess Luana Kaiulania Kaili, called "Luana Oka Alii," (meaning Luana of the Chiefs). There are many fine things in **WORKBENCH**; thought you might like an essay on the ukulele. The instrument played A, D, F#, B or G, C, E, A is called a Taropach and is played like a Spanish guitar. Oukou Nui Oiaio, (Yours very sincerely,) Prince Kalani of Maui, P. O. Box 42549, York Sta., Los Angeles 42.

Dear Prince Kalani:

Many thanks for your most interesting discourse on the baritone ukulele—Taropach or Meluke. The second half of the article describing its construction is in this issue. For information on the music charts, write to the prince direct.

Dear Sir:

I would appreciate it if you would run some plans on making kitchen cabinets, especially birch. Also tell how to expand or shorten each one an inch or two to make it fit a particular space. One other thing, how do you hide the large space between an electric stove and a sink? Francis R. Mulvey

Dear Mr. Mulvey:

Your letter reached me through several departments and your address was lost in the process, so I could not answer you personally. The cabinet series is now published in every issue, as you know by now. To hide that space, cement wood blocks to the sink, then glue to the blocks strips of wood on which plastic laminate, (Formica, Micarta, etc.) has been cemented.

Mr. Hedden and Cecil E. Jackson:

With the growing need for CB 2-way radio I was pleased to see the article on CB by Mr. Jackson. I use mobile units and walkie-talkie portables at the Watkins Glen auto races where the U. S. World Championship Grand Prix race recently was held. Without our CB units the job of controlling the crowds and race cars would be almost impossible. Let's have some articles on units and their uses. Howard Hilfiger, Geneva, N. Y.

Dear Mr. Hilfiger:

We feel as you do that there is a constantly increasing need for CB to improve communications in our personal lives, our boating and other recreation, and as an aid to Civil Defense. We will have more articles on CB.

Dear Sir:

In the May-June, 1961 issue you had plans for an early-American pewter cupboard. Enclosed is a photo of the unit that I built, with modifications to suit my purposes better. You will note I have built drawers in the lower part and made the top shelves adjustable. Drawers are lined with 1/16-in. aromatic cedar for the storage of linens and the like. Hobson Arnold, Atlanta, Ga.

Dear Mr. Arnold:

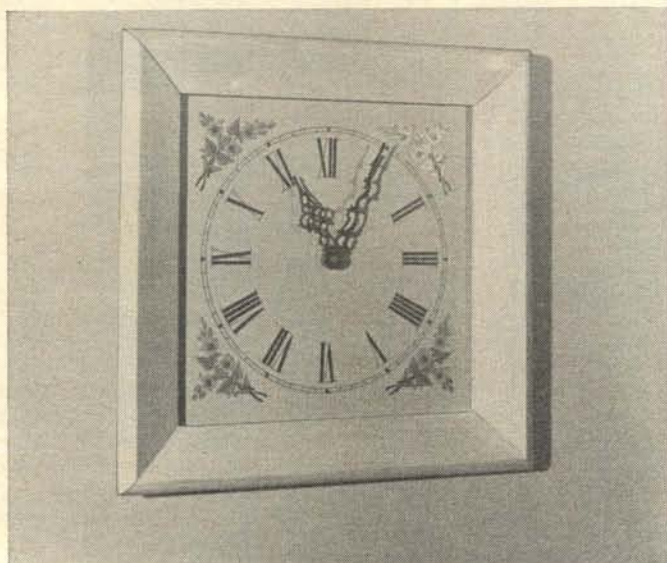
Looks like a fine piece of cabinet-work. We believe it is a sign of craftsmanship to be able to modify an existing design to do a better job for you. It's the same American ingenuity that created the original furniture that now is considered antique and valuable.



Jay W. Hedden

Jay W. Hedden, Editor

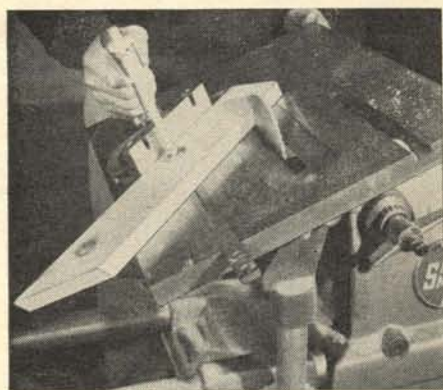
Picture-Frame Clock



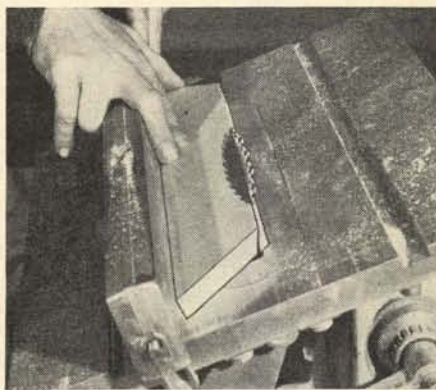
Hole cut in inside wall permits electric works to fit into wall, frame then fits as flat to wall as any framed picture hung on wall.

THIS ATTRACTIVE CLOCK can be made in one evening, using a quick-to-assemble kit that consists of an electric motor, a face available in several styles, and hands to match. The builder's job is to frame the face. You can purchase picture-frame stock, but we made our own from clear, straight-grained fir as shown in the photos. (This also helps keep down cost.) Frame corners are joined with a slip-feather miter, as described in the article on joints in this issue. The outer edges of the frame were sanded round, the inner edges cut to be at right angles to the face. The framed clock can be spaced out from the wall, or fitted on a stand, but we cut a hole on an inside wall to accommodate the clock motor. This permitted the frame to fit almost flat to the wall. The cord from the motor was dropped down inside the wall, pulled through a hole just above the baseboard and plugged into a receptacle.

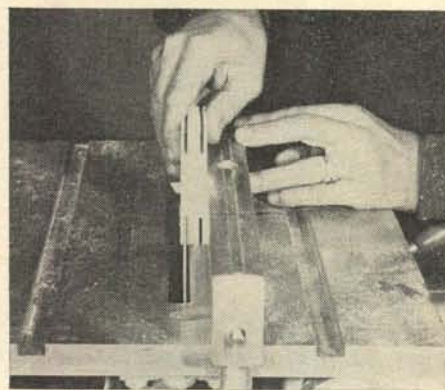
Clock kit was obtained from Mason and Sullivan Co., Box 145, Noroton, Conn. Motor can be spring-driven, electric or battery-powered. $\Delta \Delta$



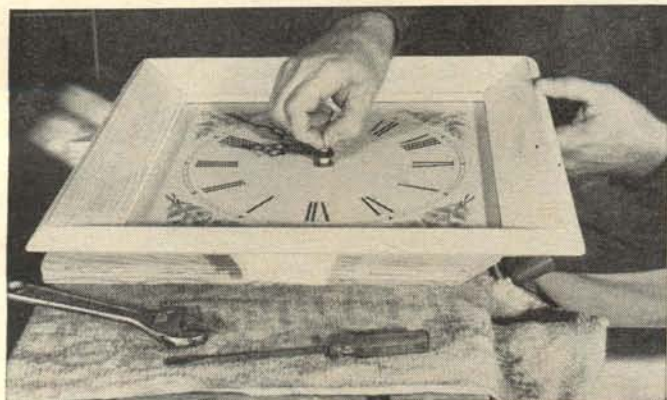
Picture frame is "dished" by making compound miters at corners. Table, (or arbor), is set at 21 deg., miter gauge at 49 deg.



To bring inner edge of frame to right angles with face of clock, edges are ripped at 60 deg. Outer edges are sanded.



Spline stock is ripped from scrap blocks, as shown, then cut to proper width. Use blocks large enough so hands are clear.



Frame corners are joined with splines, as described in article on joints in this issue, after rabbet is cut in back edges.

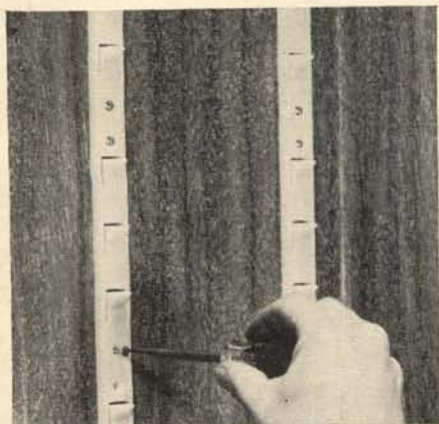


Hole is cut in wall to provide snug fit for clock motor, hook on frame is fitted over nail or hanger on the wall.

Shopping Tips

In communicating with companies whose products are described in this department, please mention **WORKBENCH**.

Adjustable Shelf Supports



SIMPLE, QUICK ADJUSTMENT of spacing between shelves to accommodate items such as books of various heights is done on these plastic shelf supports by pushing a "button." The button immediately springs back, providing strong support for a shelf. Supports can be cut to fit any situation, are easily attached with screws. Soon available in hardware and building-supply houses as a package with 4 strips each 2 ft. long, plus 12 screws. Michigan Plastic Products, Inc., Robbins Rd., Grand Haven, Mich.

Plaster-Crack Sealer



PROVED IN COMMERCIAL and industrial applications for 5 years, this system will repair plaster cracks permanently, will expand and contract with opening and closing of cracks in exterior and interior walls. Glass fabric, material and special applicator are provided in kit. For free do-it-yourself booklet and 16-page maintenance catalog, write: Tuff-Kote Co., Woodstock, Ill.

Safe Wood Planer



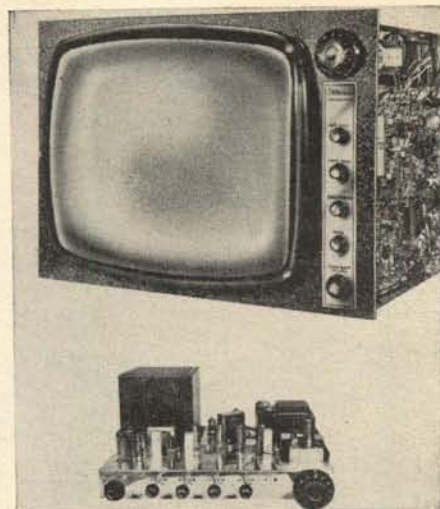
DESIGNED FOR USE on any drill press with a 1/2-in. chuck, and at speeds under 6,000 r.p.m., this rotary planer can be used without a fence or guide, claims the manufacturer. Because of its design it will not grab or kick back. Wagner Safe-T-Planer unit includes 3 blades, grinding wheel to sharpen them, arbor and wrench. \$11.75 ppd. from Gilmore Pattern Works, 1164 N. Utica, Tulsa, Okla.

CB Noise Eliminator



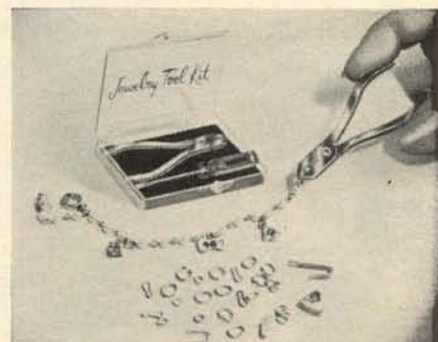
SOPHISTICATED VERSION of a circuit used by mobile-radio amateurs for years, this device is completely self-contained, prevents ignition interference from CB operator's own vehicle, also effectively blocks ignition interference from passing cars and other sources of pulse-type electrical noises. Does not work on super-regens. Noistop is \$16.95. For more information: Business Radio Co., P. O. Box 5652, Minneapolis 17, Minn.

Build Your Own TV Set



CHOOSE A 23, 24 or 27-in picture tube in these sets that you build yourself. Special circuitry is designed into the units to produce genuine hi-fi audio reproduction. "Pay-as-you-wire" plan permits purchase of first kit package for \$15; gives you plenty of time to buy subsequent kits required to finish set. For additional information: Transvision, Dept. WBH, New Rochelle, N. Y.

Jewelry Tool Kit



GET THIS SET for your wife, or yourself, if she has frequent problems with her jewelry. Has jewelers' pliers and screw driver, over 24 assorted gold and silver-plated parts to repair necklace and bracelet clasps, eyeglass frames, earring clips, etc. \$1.25 ppd. Mother Hubbard, Dept. WB-190, 176 Federal St., Boston, Mass.

Free 16-Page Pamphlet

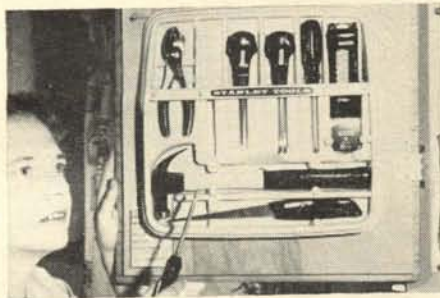
IN THIS BOOKLET are shown ideas for home and party decorations, with full instructions and step-by-step procedures. Household items such as paper, boxes, string, tin cans, egg shells and glue are utilized to make extremely attractive items. For free copy of Party and Home Decorating booklet, mail self-addressed, stamped envelope to Dept. H, Borden Chemical Co., 350 Madison Ave., N. Y. 17.

Time-Delay Switch



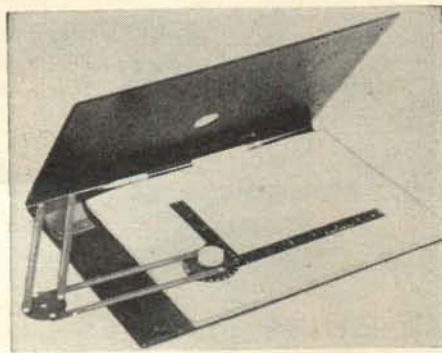
TWO SCREWS ATTACH this device to any wall switch, no wiring involved, to provide time lapse from 1 to 15 min. Brown or ivory color, \$2.98 ppd., Bracken Co., 13576 Daventry, Dept. WB, Pacoima, Calif.

Gift Tool Set



IT WILL FIT in a desk or kitchen-cabinet drawer, or can be hung on a wall or cabinet door, will be appreciated by new homeowners, a man ready to retire, a housewife that likes to take care of her own home-repair jobs. Packaged in its own handy tools that will handle the majority of jobs around the house. Wherever Stanley tools are sold, No. 9X is specially priced at \$14.95.

Portable Drafting Kit



T-SQUARE, TRIANGLE AND PROTRACTOR are combined in this portable drafting unit that is mounted in its own attractive, self-locking binder. \$8 for unit with small scale, \$9 with larger scale. For additional information or folder: Draftette Co., P. O. Box 794, Beverly Hills, Calif.

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Authentic design. Full-size. Use for actual spinning. No. 379. \$2.00.

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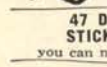
For houses covered by above plans. No. 365. \$1.50.

22 KITES

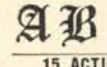
How to build all kinds of simple 2-stick, to giant 5 footer. No. 354. \$1.50.



PENNA. DUTCH DESIGNS
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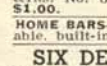
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Practical how-to information. No. 352. \$1.00.



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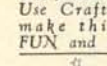
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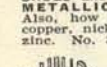
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16 Designs. Want bird houses that are completely different; if so, don't overlook these plans. No. 341. \$1.50.



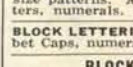
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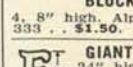
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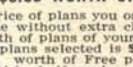
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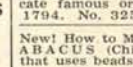
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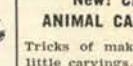
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How to make cornices, kitchen cabinets, bookcase units, modern basement, attic, etc. No. 318. \$1.50.



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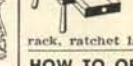
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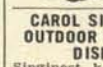
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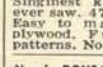
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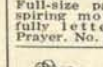
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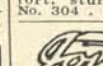
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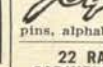
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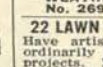
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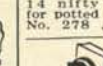
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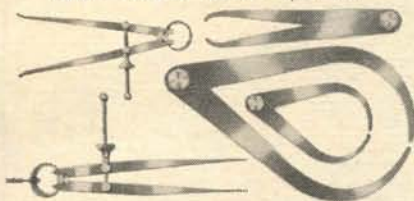


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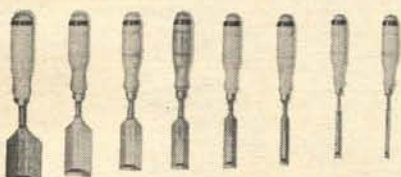
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OLD AUTHORS, Dept. WH-1, Rowan, Iowa

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Here is a rare opportunity to buy colonial furniture, faithfully reproduced by old-time wood craftsmen, K.D. and ready to assemble and finish. Some also available finished. Chests, hutches, desks, corner cabinets, gateleg tables, card tables, hitchcock chairs, canopy and cannon-ball beds, occasional tables, benches, cracker bins, apothecaries, dough boxes, shaving stands, cocktail and coffee tables, and turnings. All are clean cut, fully machined, and polish sanded. Mortise and tenon construction. Hardware and hinges seated. Screws, pulls, bed rails and hooks furnished. Panel doors and glass doors assembled, less glass. Shipped direct from factory. Detailed finishing instructions free with each order. Send 25c for drawings, description and prices of complete line. If not satisfied, return for full refund.

GASTON FINISHES

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8 « WORKBENCH

SHOPPING TIPS

Suppression Booklet



"Giving Two-Way Radio Its Voice," is the name of a booklet published by the Champion Spark Plug Co., Toledo 1, Ohio. It explains how much ignition suppression can be used without causing engine problems. A 2-page section tells how to cure marine-engine problems also; quite timely as outboard manufacturers now are releasing suppression kits for their motors that eliminate ignition noises in two-way radios.

Gluing And Finishing

DISCUSSED IN THIS BOOKLET are more popular wood finishes, including Danish-type oil "hand-rubbed" type that requires no rubbing. Gluing section shows 6 common joints and tells how to apply glue and the necessary clamping pressure. For free copy write: "Professional Gluing and Wood Finishing Guide," Dept. PR, U. S. Plywood, 55 W. 44th St., N. Y. 36.

Auto-Current Converter



OPERATE ANY SMALL RADIO or an electric shaver from your car battery with this converter. Plugs into cigarette lighter, no installation is required. \$12.95 from Terado Co., 1056 Raymond Ave., St. Paul 8, Minn.

Rustproof Your Car Doors



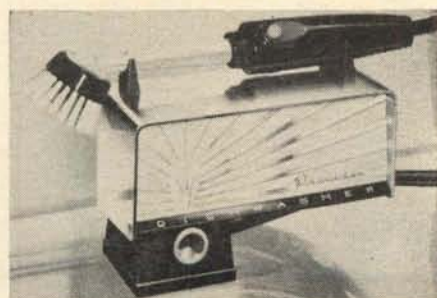
SNORKEL, RUST-REACHING TUBE 3 1/2 ft. long fits on spray container of rustproofing paint so paint can be sprayed inside doors and rocker panels without removing upholstery. Snorkel kit includes 16-oz. spray can, case-hardened steel punch, spray head and 6 lengths of plastic tubing. Retail price is \$3.49. For more information: Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

Paint A Wall Mural



PAINT A 5 TO 14-FT. MURAL directly on your wall with this kit that lets you do it by numbers. Modern, provincial and oriental designs available. For free color catalog, (enclose 10 cents for postage and handling), Mural Arts, WBEP, 1038 S. La Brea, Los Angeles 19, Calif.

Manual Dishwasher



NEW TYPE DISHWASHER replaces any automatic rinse spray attachment on kitchen sink, can be installed in about 3 min. Large detergent tank is easily accessible, can be removed in seconds for cleaning. Made of chrome plate and new Delrin and nylon plastics. Princess Dishwasher is made by Manville Mfg. Corp., 342 Rockwell, Pontiac, Mich. Price is \$24.50.

For Tired Feet



IMMERSE THESE ITEMS IN HOT WATER, fit them in your shoes and put on the shoes. Self-conforming plastic shapes to your feet, gives comfortable, natural support. Send shoe size, tell if for man or woman. \$3.98 a pair. Cal-Leather Co., Dept. W-304E, 963 Harrison St., San Francisco 7, Calif.

New-Type Ratchets



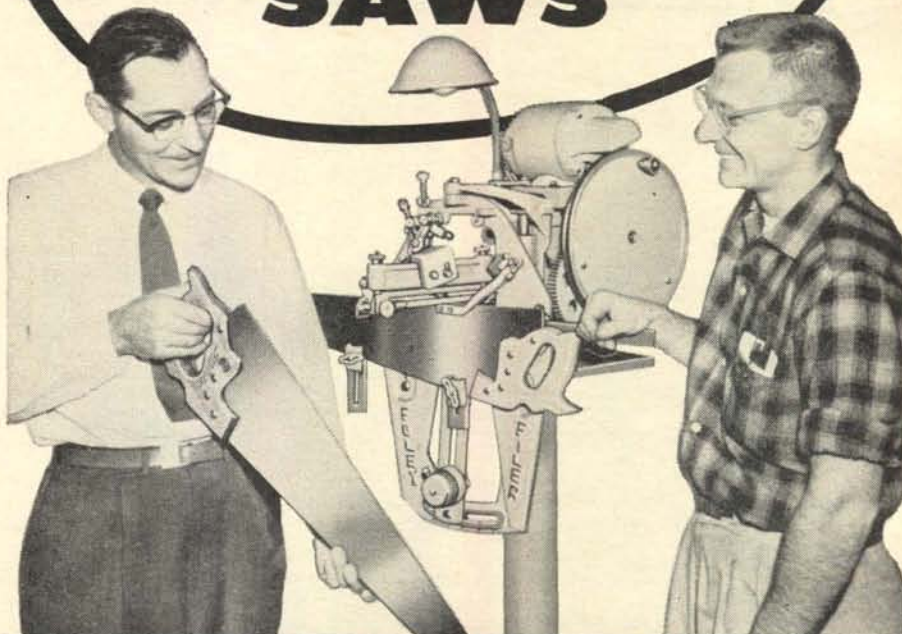
ONLY 7 PARTS are used in these ratchet wrenches, as opposed to 12 to 18 in other types. An oil-resistant neoprene rubber plug replaces the usual small springs. Available in 1/4, 3/8, 1/2 and 3/4-in.-drive models from Crescent Tool Co. dealers.

Wait With Music



"HOLD THE PHONE" no longer will mean annoying silence with this accessory on which the receiver is placed while you leave the telephone. Placing the receiver depresses a button that starts a music box, and the waiting caller is entertained by music. Popular, spiritual, classical or commercial music available. State type of music, color desired to match phone. \$4.95 ppd., Melody Phone, Dept. W., 110 Madeira Ave., Coral Gables, Fla.

CASH FILING SAWS



make from \$3 to \$6 an hour spare time or start a full time business with the **FOLEY SAW FILER**

Here is a steady repeat CASH business you can start at home in your basement or garage, while you are working at your regular job. No experience is necessary to turn out perfect cutting saws—"The first saw I sharpened came out 100%. I think the Foley Saw Filer is a marvel of perfection," writes Clarence E. Parsons. No canvassing—every saw you sharpen will bring you new customers. You will find you can make up to \$3 or \$6 an hour—\$20 to \$30 a week in your spare time as a starter. "My spare time saw filing business has made me \$952 these first ten months," says R. T. Chapman.

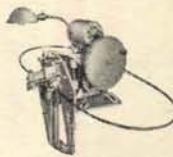
The new model 200 Foley Saw Filer (shown here) is the *first and only* machine that automatically sharpens combination (rip and crosscut) circular saws—also all hand saws, band saws and crosscut circular saws. It is easy to operate—simple adjustments—no eyestrain. Patented jointing principle evens up all irregular teeth and makes an old saw cut just like new.

This Free Book "MONEY MAKING FACTS" Shows How to Start

"Money Making Facts" shows you how others have added hundreds or thousands of dollars to their incomes and how you can develop into a general repair shop that will be your own business. This is a CASH business with a small investment, no overhead, no stock of goods to carry. Time Payments if desired. Mail coupon now for free book and nation-wide survey of saw sharpening charges. No salesman will call.



Files Circular Saws—
Model 200 Foley Saw Filer filing a "combination" saw. It sharpens all combination and crosscut circular saws 4" to 24" in diameter with 3 to 16 points per inch.



Files Band Saws— In addition to all hand saws, and circular saws as listed, the Foley Saw Filer sharpens band saws up to 4 1/2" wide, with 3 to 16 points per inch.

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Send me free book "MONEY MAKING FACTS" and Saw Sharpening Price Guide.

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Build A Grandfather Clock

HARRY HARRIS



1. At this point in construction graceful design of case is apparent. Builder is sanding wood putty used to cover countersunk nails in trim, will lightly sand entire case to ready it for application of filler and finishing materials.

WHEN WE DECIDED, in response to requests from many of our readers, to run an article on building a grandfather clock, our first step was to investigate the most suitable size and design of clock case. Our research brought out the facts that clock cases can vary in height from about 4 ft. up to over 7 ft., and in style run the gamut from grandfather through grandmother and even granddaughter styles. For these reasons this article will show and describe the construction of a typical, rather than specific, style of case. We recommend that readers interested in building a grandfather clock write to our several advertisers and obtain their catalogs. You then can choose from the several dozen sizes and styles available, the case that most appeals to you.

Plans, hardware and molding and trim for the clock shown were purchased from S. A. Byers Co. The plans show patterns for making the various molding and trim, but as not all of us have shapers, or molding heads or lathes, we purchased the trim, Fig. 2, as a kit from the company. A material list comes with the plans, (or blueprints), and we took this list to a local lumberyard. Several sheets of hardwood-faced plywood of various thicknesses were required. We used walnut in our clock, and had ordered the trim and molding in that wood. Maple and other attractive hardwoods can be used, at the option of the builder.

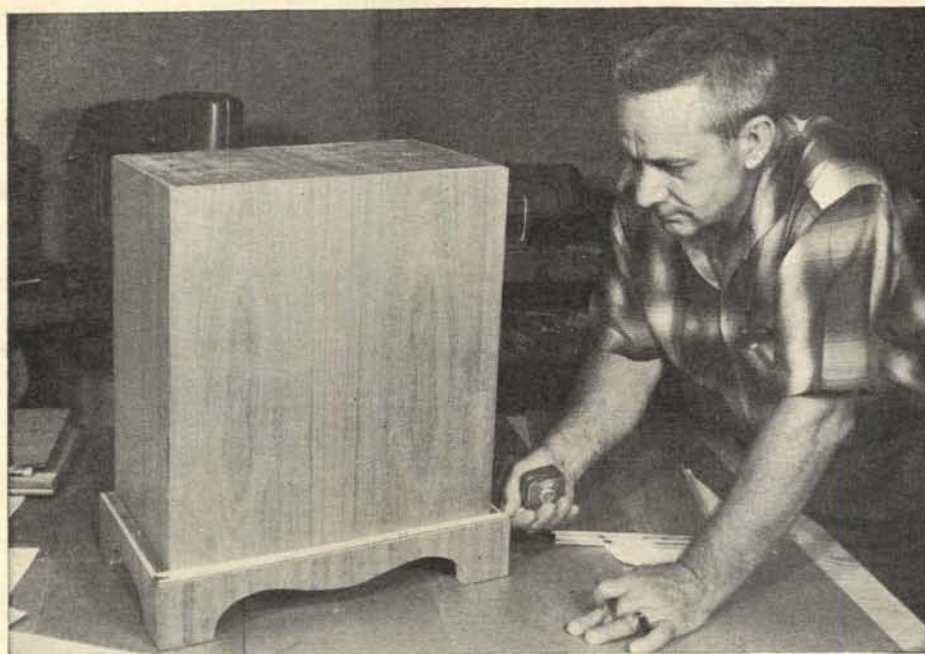
First step in construction was to cut all the pieces required, using the full-size templates provided. Assembly of the base was first, Figs. 3 and 4. Lengths of quarter-round were nailed and glued inside the assembly, Fig. 4, to assure a rigid assembly. The hood, or top portion, of the case, Fig. 5, was assembled in a similar manner. Bar clamps, or clamp fixtures on lengths of pipe, are necessary for assembly of the case. The waist of the clock, Fig. 6, was assembled next and fitted on the base. The hood then was fitted

on top of the waist. The sides and back of the waist are hardwood-faced plywood, while the front is solid stock. A bevel, required on the edges of the front, can be cut with a portable router, Fig. 7, or other means. The door in the waist, Fig. 8, also is solid stock, and requires precise fitting and attention to details.

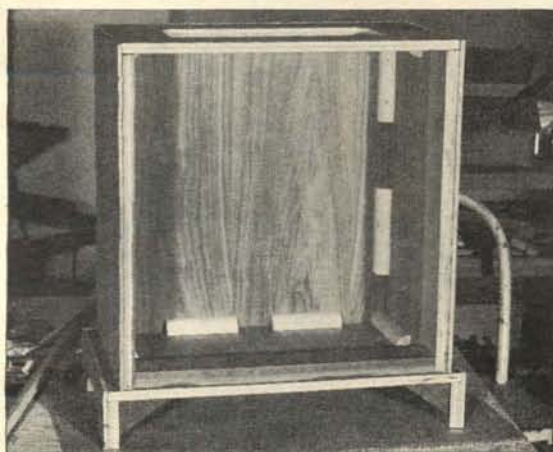
All exposed edges of plywood were covered with veneer tape during assembly. Each piece of trim and molding had to be mitered or fitted carefully and cut to length. It was at this point that we determined that criticism of the so-called "kit-type" assembly of a clock case is unfounded. Most of our spare time in evenings and weekends for two months had been required to reach this point in the assembly, Fig. 1, and there was still plenty to do. The chime assembly had been mounted on its support, Fig. 9, and the works on its own specially-shaped board, Fig. 10. Fitting, shaping and smoothing the trim, finial and columns on the hood, (see cover) took another week. A complete sanding was next,



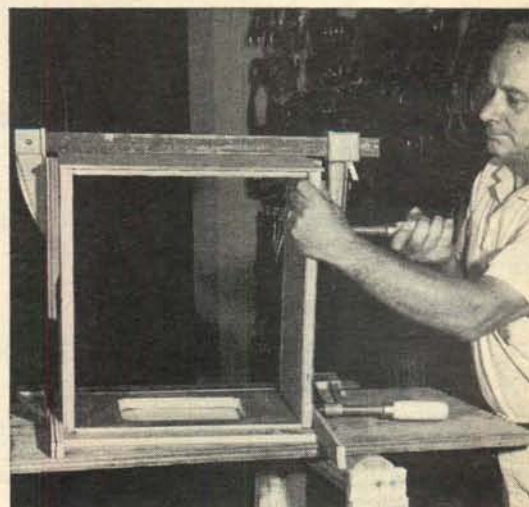
2. Study of plans, (blue-prints now available), inventory of parts, supplies and materials is first step.



3. After cutting parts from plywood, first assembly is base of clock. Components must be true and square.



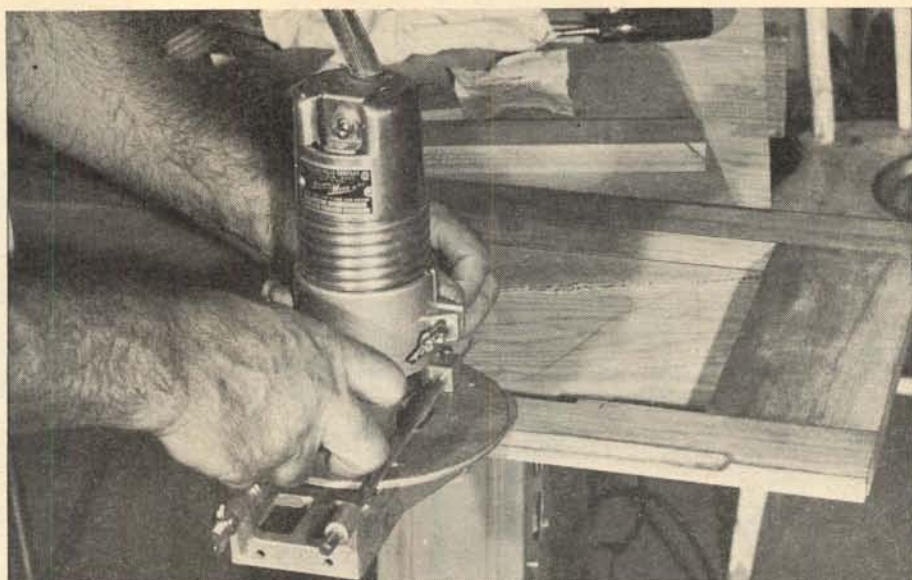
4. View of inside of base shows glue blocks, as used throughout clock case, to assure rigid construction.



5. As on other parts of clock case, long clamps are needed to assemble hood of case, hold it for gluing.



6. Waist of clock is assembled on the base, can be done while base is test-assembled, as here. Parts must fit exactly.

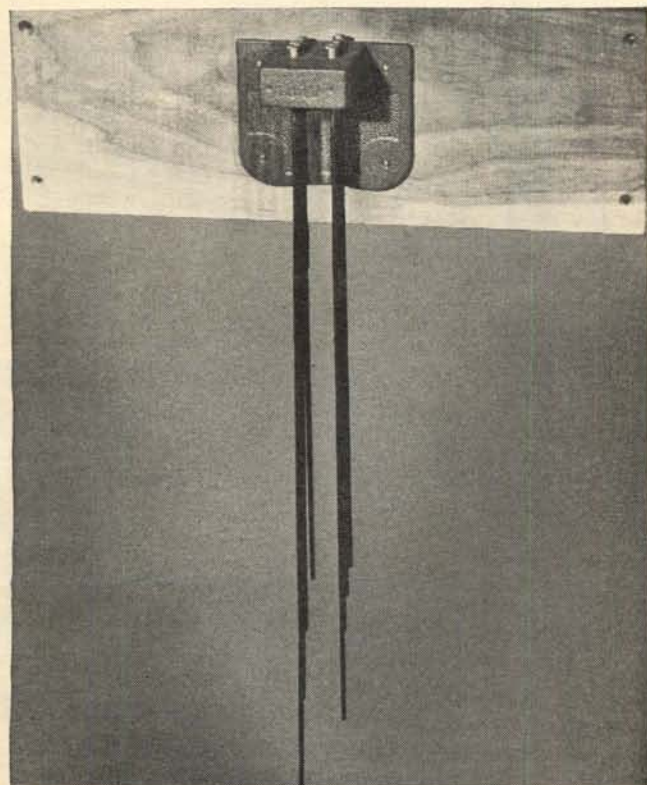


7. Bevels required on edges of front of clock waist are done most accurately and neatly with aid of portable router. Shaper could be used, if stops were clamped to table. Bevels also could be cut with hand tools, if craftsman is skilled in their use.

(the wife was a great help here), followed by the use of filler that was wiped off as per instructions and the case was sanded again. Our choice of finishes was a "hand-rubbed" type from Gaston Finishes, Fig. 2. This type of finish gives a hand-rubbed look without the work. We

would not recommend a glossy finish for any grandfather case.

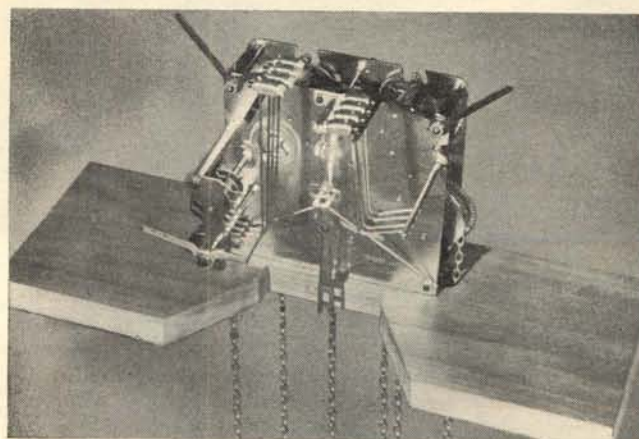
Final step in the assembly was to fit in the works and chimes and carefully level and adjust the mechanism as per instructions. The wife and I (cover) are proud and delighted with the finished product. $\Delta \Delta$



9. Sub-assemblies in clock include carefully measured and fitted board on which chime rods are fastened as indicated.



8. Door frame in waist of clock is fitted more carefully than house door, mortises are cut to accommodate hinges precisely.



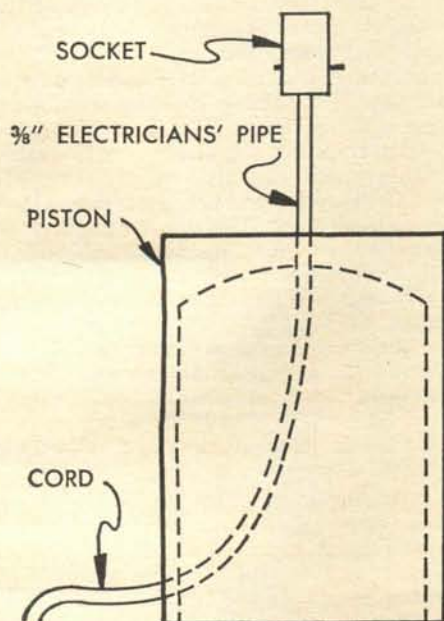
10. Heart of the clock is the works. This precision-built machine counts minutes, hours, phases of moon, sounds chimes.



Create A Lamp

NORMAN BEDWELL

LAMPS CAN BE CREATED from a great number of items, but for one with a truly masculine appearance try using pistons from a gasoline engine for the column. For the lamp shown, a piston from a farm tractor was used. This type piston is longer than those used in automobile engines, and thus provides a more stable column. Pistons can be picked up cost-free at garages. They can be cleaned with a carbon solvent, then wire-brushed to a polish. A hole is drilled in the top of the piston and it is threaded to receive a short length of electricians' pipe. A hole is drilled in the skirt of the piston near the bottom, the cord threaded through it.



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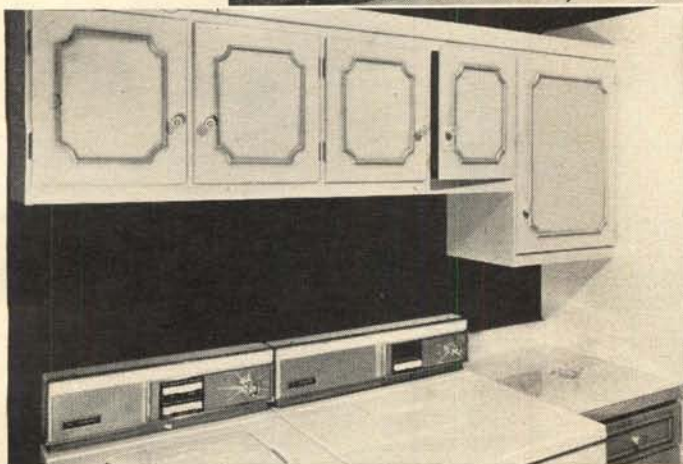
TV Servicing Systems, Dept. H791,
1038 S. LaBrea Ave., Los Angeles 19, Calif.

Please rush proof that your Symtronic Training Method is all you say and information on how I can have my own TV Repair Business with customers calling me within a week. Also, please send Sample Lesson and other details, without obligation. (No salesman will call.)

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1. Both styles of cabinets shown have "Lip-type" doors, with overlap all the way around. As stated in the article, styling is changed by surface ornamentation, hardware and kind of finish applied. Older cabinets can be restyled.



Building Kitchen Cabinets

RALPH TREVES

Door Construction

PART III

AS STATED IN A PREVIOUS ARTICLE, styling of kitchen cabinets depends mostly on the doors and drawers, plus the decorative value of hardware and any surface ornamentation, well illustrated in Fig. 1.

There are four basic door types:

1. Lip Type, which overlaps the cabinet frame all around. Both cabinet styles in Fig. 1 have this type door. A rabbet on the back edges of the lip type permits the door to recess one half its thickness into the cabinet. The lip can be left square or may be rounded.

2. Flush Type, that are fitted square into a cabinet opening, with

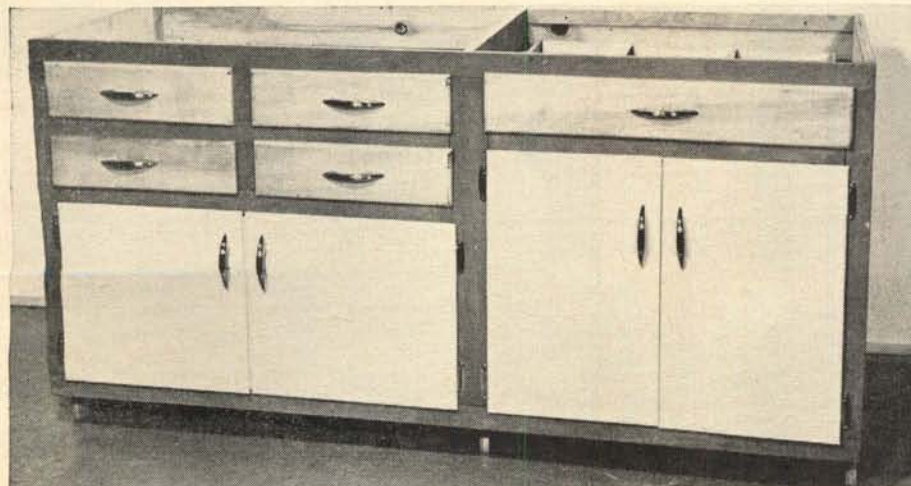
just enough clearance to permit the door to swing freely. Hinges are mortised into the edges and must be set perfectly plumb so the door sets flush with the opening its entire length. One drawback of this type door is that cabinet rails are partly exposed. One variation of this type is the use of a solid sheet of plywood to cover the entire front of the cabinet. The doors are cut out of the sheet and hinged; the sheet with cutouts is attached to the cabinet frame. An advantage of this method is that color and grain of doors and frame match exactly.

3. Overlay Doors, completely cover the cabinet face. The doors are made larger than the openings so the edges of adjacent doors meet. The doors thus are heavier and put added strain on hinges.

4. Sliding doors are excellent for certain locations, may be used in conjunction with other types. Chief drawback is that only one half of a cabinet is accessible when door is opened. Doors are readily removed.

In addition to the 4 categories, doors vary as to surface appearance such as slab, raised or recessed panel, and surface ornamentation.

Most popular, and easiest to make, is the simple $\frac{3}{4}$ -in. plywood door



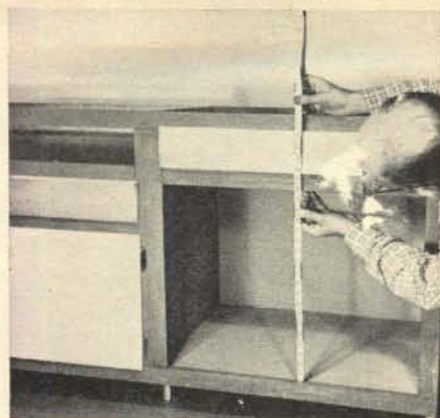
2. Both drawers and doors on our basic cabinet have lips that overlap cabinet frame all around. This style is most popular, is easiest to build, and overlap provides leeway.

with round lip, Type 1. First step in making and installing this type door is to check cabinet openings to be sure they are square and uniform all around. The overlap allows some leeway, but fitting is easier if the openings are square and true, Figs. 3 and 4. The doors are made of $\frac{3}{4}$ -in. plywood, that may be fir, which is inexpensive and is painted or stained, Fig. 2, or may be a veneered plywood with a hardwood face. The latter material takes a natural finish. The lip overlaps $\frac{3}{8}$ in. on the doors, which means that each door is $\frac{3}{4}$ in. longer in each direction than the cabinet opening. This is true also of doors that overlap over a wide opening that requires two doors, Fig. 7. Note the reversal of the rabbet on one door. To eliminate the need for opening both doors when just one is to be opened, the lip can be eliminated.

Door edges can be shaped with a molding cutter in a table saw, Fig. 8, or on a regular shaper or with a portable router, Figs. 5 and 6. After



3. Before making the doors, check the openings in your cabinet for dimension and squareness. Although overlap allows for some out-of-square, it is easiest to start with square openings.



4. Make your measurements in both directions. It is as easy to have problems vertically as horizontally. Make door to fit easily into the smallest dimension of the cabinet-frame opening.

the edges are shaped you can add interest by sawing shallow grooves about 4 in. apart, routing a groove parallel to the edges or by applying

thin moldings, as in Fig. 1.

Special hinges for lip-type doors, Fig. 9, are easily installed. Both width and depth of the rabbet should



5. Not too many home-shop owners have shapers, so portable router is the tool to use to form the bull-nose on the lip, and to cut the rabbets on the back edge of the door.



6. Router here is being used to cut rabbet on back edge of door. Cut all rabbets first, before changing bits, to assure that all rabbets are the same depth. Pilot bit cuts only one width.

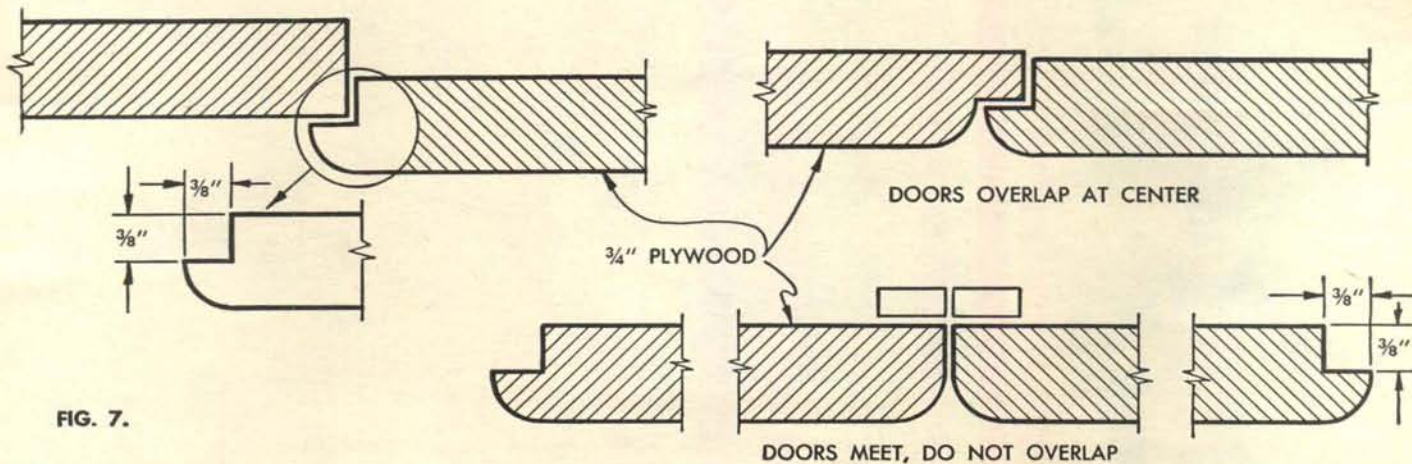
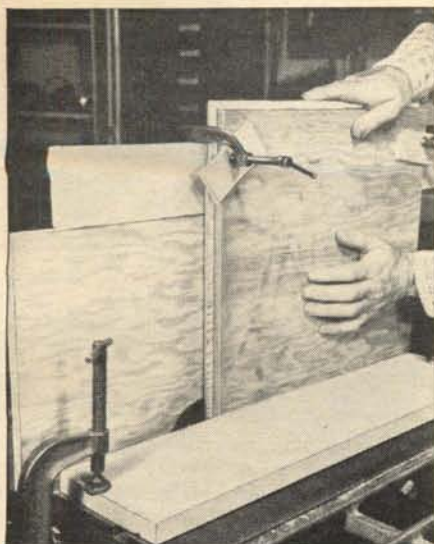
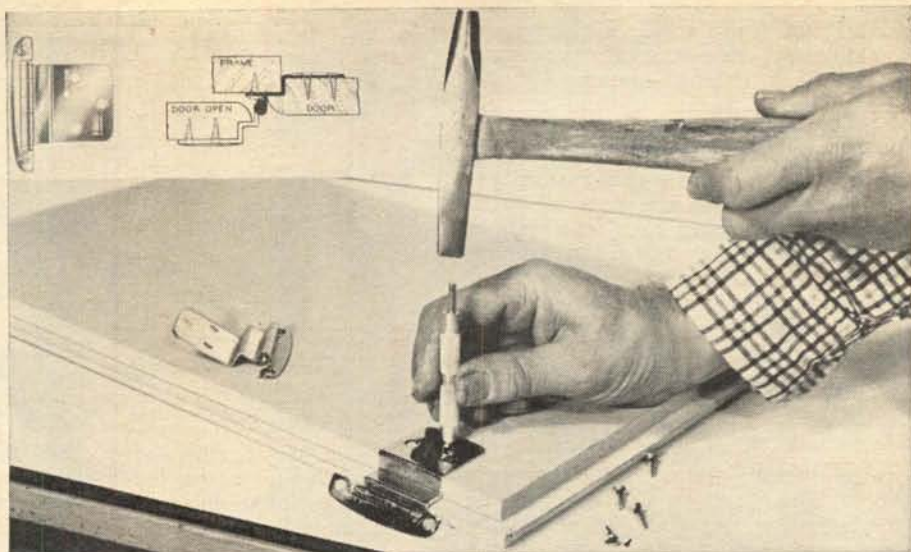


FIG. 7.



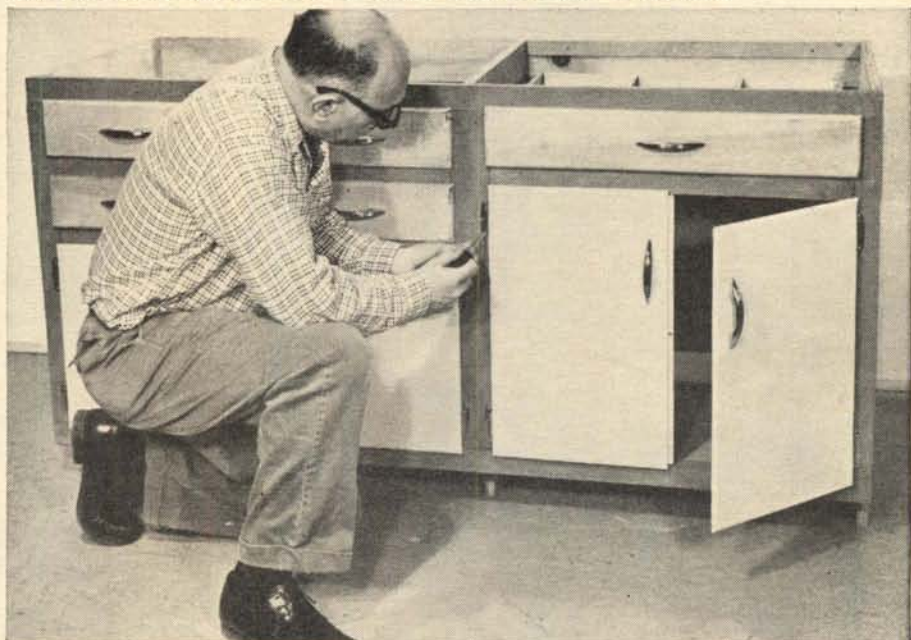
8. Doors also may be shaped with molding cutter used in table saw. Jig setup assures smooth, uniform cuts and speeds work.



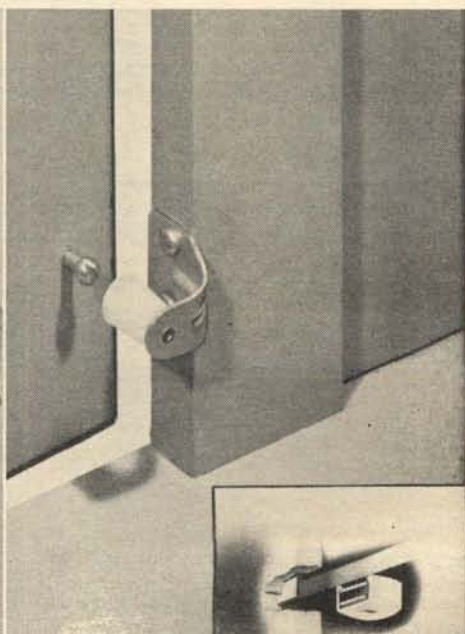
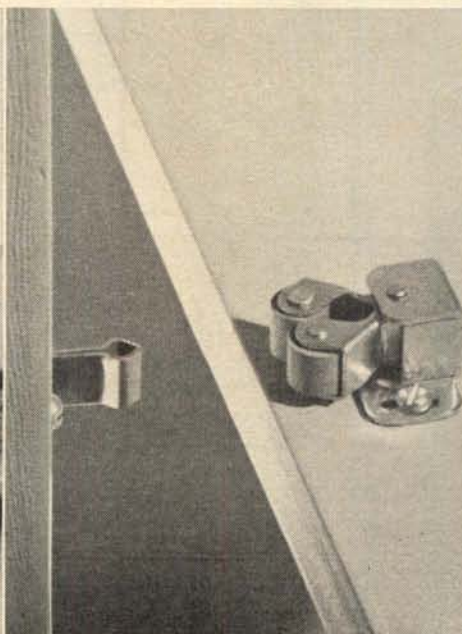
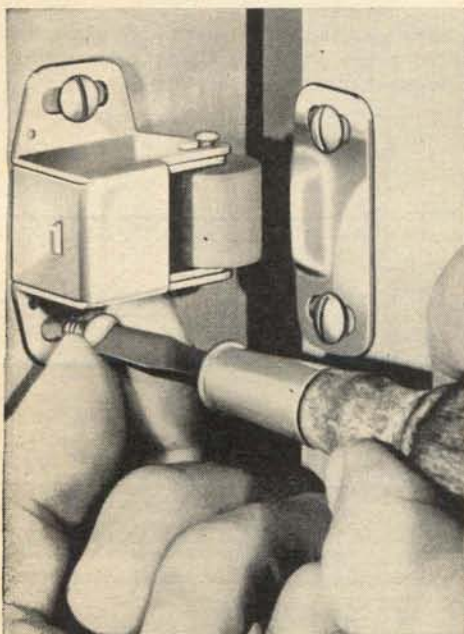
9. Rabbet on back edges of doors is made $\frac{1}{16}$ in. wider to accommodate the thickness of semi-concealed, offset hinges. Hinges are self-aligning, most accurately positioned by using self-centering punch to locate screw holes so hinges do not shift.

10. Mounting of doors is simple, as hinges line up naturally. But, first place paper spacer under bottom edge to space door.

be $\frac{1}{16}$ in. greater than standard to allow for the thickness of the hinges. Hinges are self-aligning, Fig. 10, simplifying hanging of the doors. Installing latches, Fig. 11, completes the job. $\Delta \Delta$



11. Choice of latches is up to builder; magnetic latches are quiet and sure, various types of friction catches use rubber and plastic against metal to assure positive latching. Cost may be factor, long life another, ease of installation also.



The Right Slant

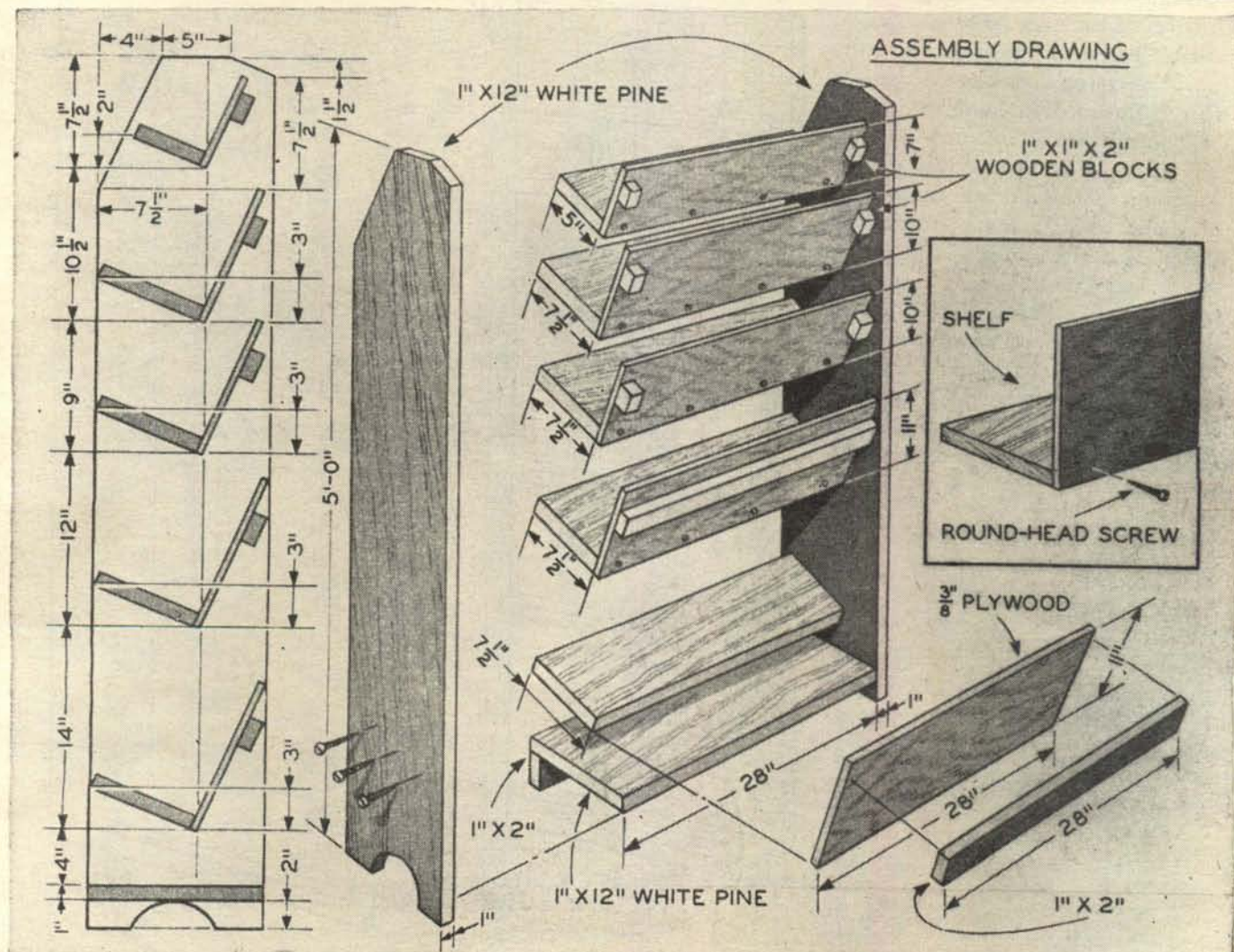
on a Bookcase

JACK B. KEMMERER

FROM PAPER-BACKS to big dictionaries to magazines can be kept in this clever bookcase that has the right slant on the job of keeping your library "in sight". Lengths of 1 x 2, 1 x 8 and 1 x 12 clear-pine stock are suggested for the construction, if the case is to be painted. If you want a more furniture-like appearance, hardwood stock, or hardwood-faced plywood can be used. Note that wood blocks are used to support the backs of the three upper shelves, the lower two shelf backs are reinforced by lengths of 1 x 2 fitted all across the back and glued and screwed to the side members.

If you have a set of encyclopedias or other large volumes, check the height of the bottom shelf before installing it. It might be necessary to lower the bottom shelf to provide the necessary height for those special volumes. If pine is used, the bookcase can be painted any desired color. Hardwoods should be stained, sealed and varnished, or left the natural color and sealed and varnished. $\Delta \Delta$

Angle of the shelves serves the double purpose of keeping the books firmly in place and permitting easy reading of the titles.



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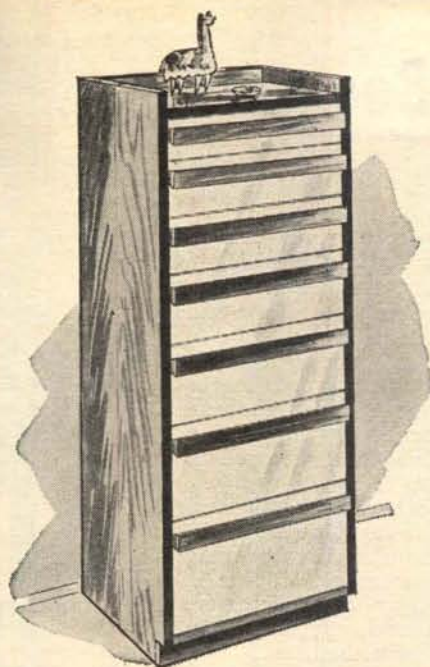
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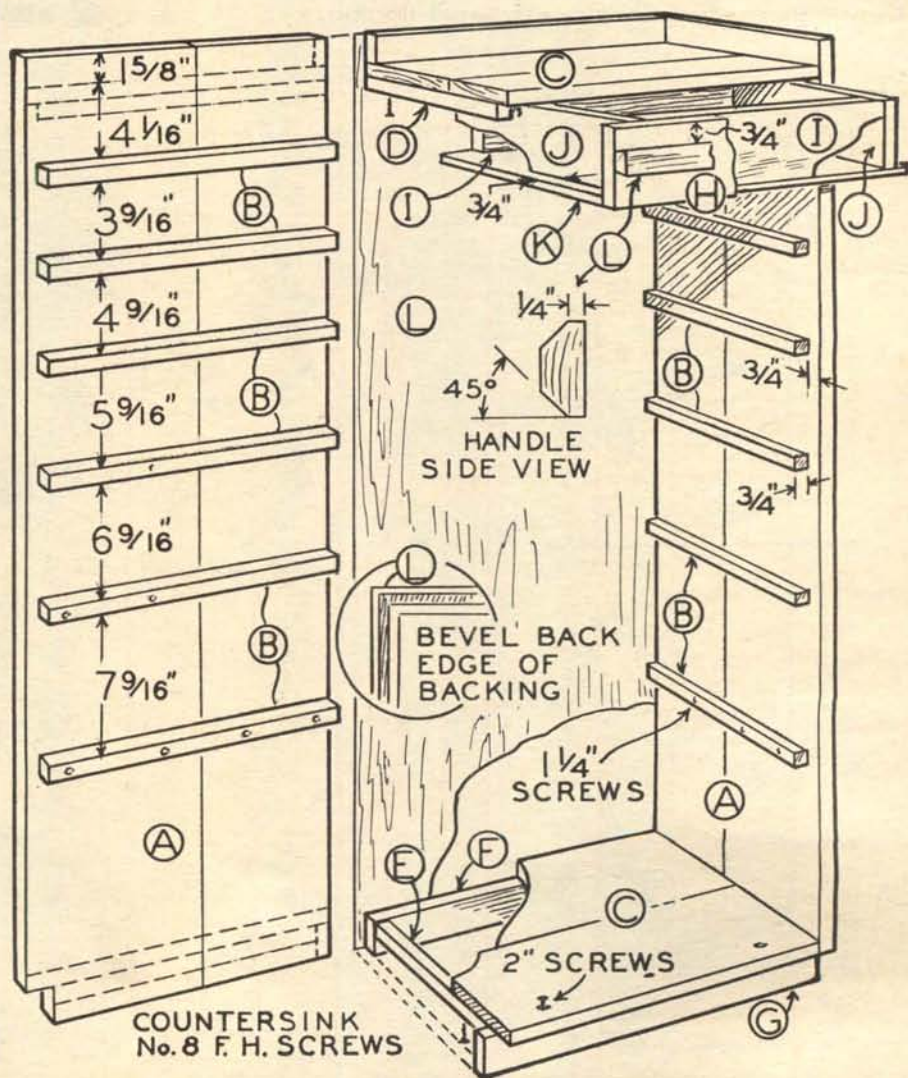
City _____ Zone _____ State _____



Slim-Jim Chest

ROBERTA FAIRALL

THERE ARE SEVEN generous-size drawers in this chest that is designed to provide maximum storage space in a minimum of floor space. Construction is simple, no complicated joinery is involved. Solid stock or veneered plywood can be used.



MATERIALS LIST

1" Douglas fir or white pine, or 3/4" veneered plywood.

A, Sides, 17" x 50 1/4", 2 req'd.

B, Drawer Slides, 3/4" x 16 1/4", 12 req'd.

C, Top and Bottom, 17" x 18 1/2", 2 req'd.

D, Cleats for Top, 3/4" x 16 1/4", 2 req'd.

E, Cleats for Bottom, 3/4" x 14 3/4", 2 req'd.

F, Stretcher, 2 5/8" x 18 1/2", 1 req'd.

G, Apron, 2 5/8" x 20", 1 req'd.

H, Drawer Fronts

Upper, 3 1/4" x 18 3/8", 1 req'd.

2nd, 4 1/4" x 18 3/8", 1 req'd.

3rd, 5 1/4" x 18 3/8", 1 req'd.

4th, 6 1/4" x 18 3/8", 1 req'd.

5th, 7 1/4" x 18 3/8", 1 req'd.

6th, 8 1/4" x 18 3/8", 1 req'd.

Bottom, 9 1/2" x 18 3/8", 1 req'd.

I, Drawer sub-fronts and backs

Upper, 3" x 15 3/8", 2 req'd.

2nd, 4" x 15 3/8", 2 req'd.

3rd, 4 1/2" x 15 3/8", 2 req'd.

4th, 5 1/2" x 15 3/8", 2 req'd.

5th, 6 1/2" x 15 3/8", 2 req'd.

6th, 7 1/8" x 15 3/8", 2 req'd.

Bottom, 8 3/8" x 15 3/8", 2 req'd.

J, Drawer Sides

Upper, 3" x 16 1/4", 2 req'd.

2nd, 4" x 16 1/4", 2 req'd.

3rd, 4 1/2" x 16 1/4", 2 req'd.

4th, 5 1/2" x 16 1/4", 2 req'd.

5th, 6 1/2" x 16 1/4", 2 req'd.

6th, 7 1/8" x 16 1/4", 2 req'd.

Bottom, 8 3/4" x 16 1/4", 2 req'd.

K, Drawer Bottoms, (except upper two drawers), 16 1/4" x 18 3/8", 5 req'd.

L, Handles, 1 5/8" x 18 3/8", 7 req'd.

1/4" Fir Plywood.

K, Bottoms for two upper drawers, 16 1/4" x 18 3/8", 2 req'd.

L, Backing, 17" x 50 1/4", 1 req'd.

Miscellaneous

Glue, white liquid resin.

Flathead wood screws, 1 1/4" and 2", No. 8.

Brads and finishing nails.



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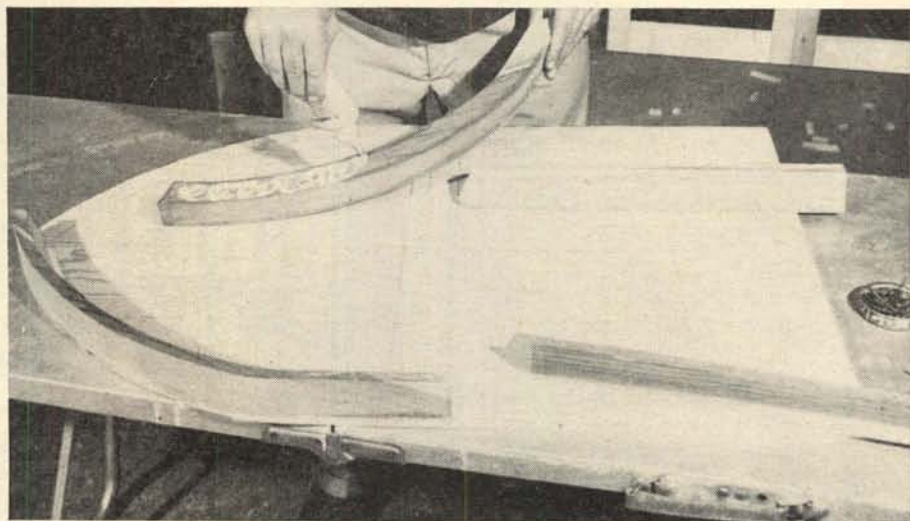
State _____



1. Displayed indoors or out, this fountain adds a touch of beauty in sound and appearance to any home. Inside, it becomes an attractive humidifier adding moisture to air.

Indoor-Outdoor Fountain

2. After cutting back member to shape, edge pieces are band-sawed as indicated in drawing, glued in place. Use of waterproof glue is not necessary, as all wood is sealed.



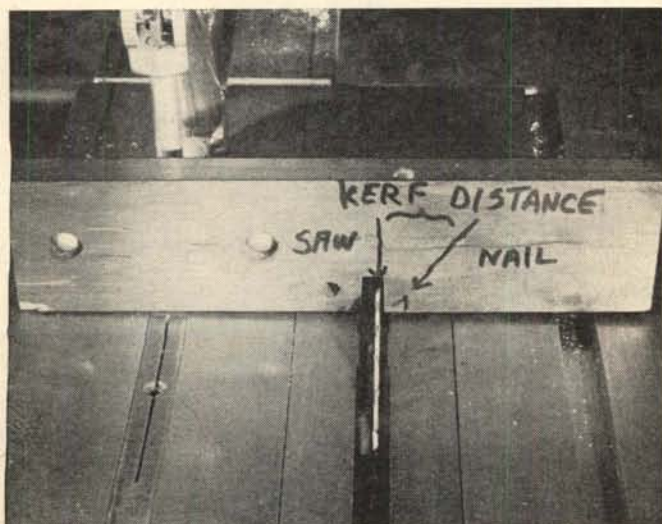
DESIGNED ESPECIALLY FOR WORKBENCH readers, and patterned after the lovely fountains of antiquity, this indoor-outdoor water fountain, Fig. 1, will add beauty to any home. Inside or out, the fountain can be hung on a wall, set on a lawn or patio, or any support designed for it.

Craftsmen looking for an item to make for sale will find the fountain ideal. If you have a problem in your home of low humidity in winter, the fountain will help solve it; the falling rivulets of water evaporate readily.

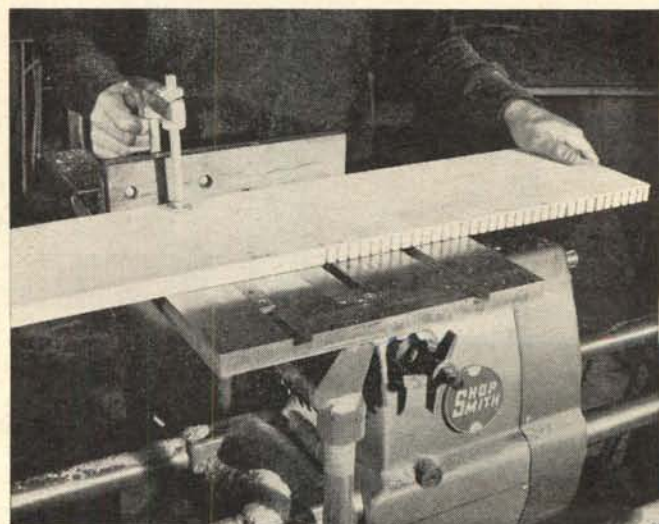
First step in construction is to round up the necessary material. Except for the pump, you might have all the lumber on hand. Cut the back

and bottom of the fountain from $\frac{3}{8}$ -in. plywood, Fig. 14. Use the back as a pattern for cutting the side pieces. They are band-sawed from 2-in. stock. They are glued to the back, Fig. 2, and held with a few nails driven into them through the back. Next, make a setup on the miter gauge of your table saw, (or the

fence of your radial-arm saw), as in Fig. 3. A nail with head cut off is positioned about $\frac{3}{8}$ in. from the blade, and the blade is set to kerf 1-in. stock to a depth that leaves $\frac{1}{8}$ of wood uncut, Fig. 4. Make the first cut, then lift the work and fit the cut over the nail and make the second cut. Repeat this operation the length

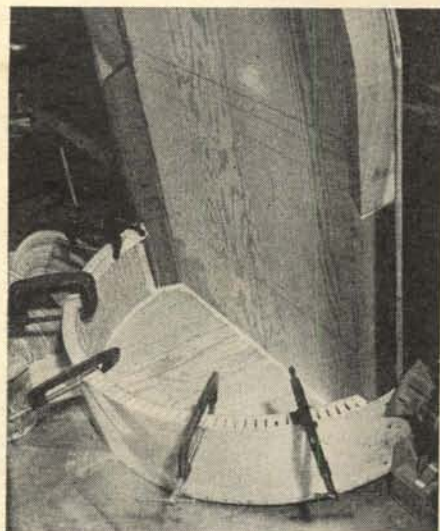


3. For quick and accurate kerfing of piece of wood that provides front, bolt board to miter gauge, space nail width of kerf.



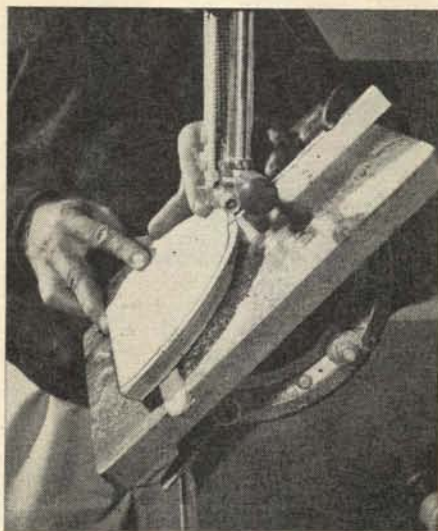
4. With setup shown in Fig. 3 kerfs are cut quickly on member that is curved to make front of fountain base.

of the stock. At the ends of the stock, Fig. 14, clean off the notched stock so that $\frac{1}{8}$ -in. material is left to be glued and nailed to the back of the fountain, Fig. 5. The bottom of the



5. End of kerfed stock is thinned to permit nailing to back, strip is glued to inside of curve; glue used generously throughout.

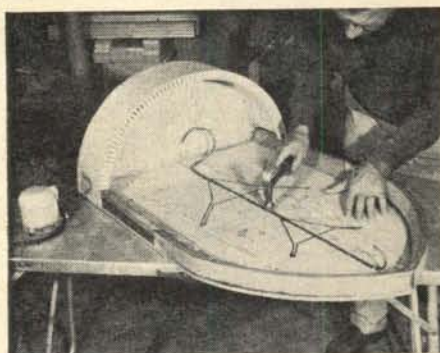
unit also is glued and nailed in place at this time. To reinforce the kerfed and bent front piece, glue a scrap of stock about $\frac{1}{16}$ in. thick and 1 in. wide to the inside, as in Fig. 5.



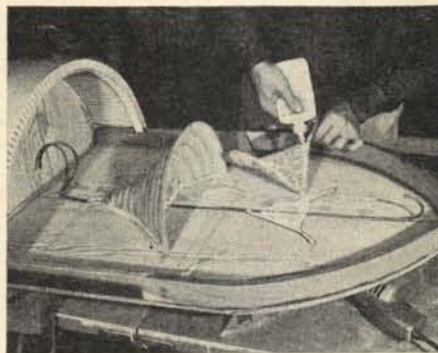
6. Angled semi-circles are cut from plywood to form the two tapered bowls. As shown, bandsaw with tilt-table is best tool.

The two bowls are cut next. They are assembled from semi-circles cut from $\frac{3}{4}$ -in. plywood. Note, Fig. 14, that the first few pieces are cut at an angle of 45 deg., and the lower pieces are cut at 30 deg. All pieces are cut $\frac{3}{8}$ in. wide, Fig. 6, every other piece being discarded. The alternate pieces will fit exactly to form a smooth-surfaced cone, Fig. 8. Before attaching the bowls, rout a groove down the center of the fountain back, Fig. 7, and fit in a 40-in. length of $\frac{1}{8}$ -in. I.D. soft copper tubing. The shapes of the two bowls and the positions also should be marked on the center line used to indicate the groove, Fig. 7.

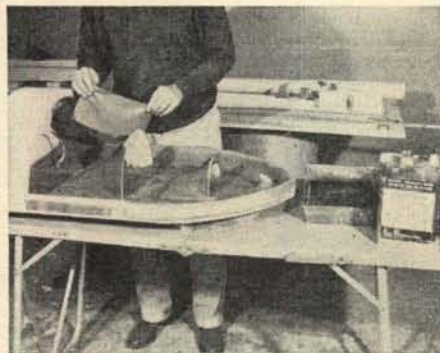
For covering the fountain we used Sculpt-O-Fab. This is a cloth-like material that is dipped for 5 seconds in an activator liquid, then applied and allowed to set. Small pieces of the material are cut or torn, to permit easy application to curves, Fig. 9. Each piece is lapped about 1 in. To provide the appearance of rough stone, Sculpt-O-Fab Patching Compound is wiped on the cloth, Fig. 10. Sculpt-O-Fab cloth and Patching Compound can be purchased from



7. Shapes of bowls are drawn on back, then groove is routed to accept copper tubing. Staples are used to hold tubing.



8. After tubing is fitted in place, two bowls are assembled and glued to back member. Note how tubing is bent.



9. Pieces of Sculpt-O-Fab are cut and immersed in activator, then applied to entire surface of the fountain structure.



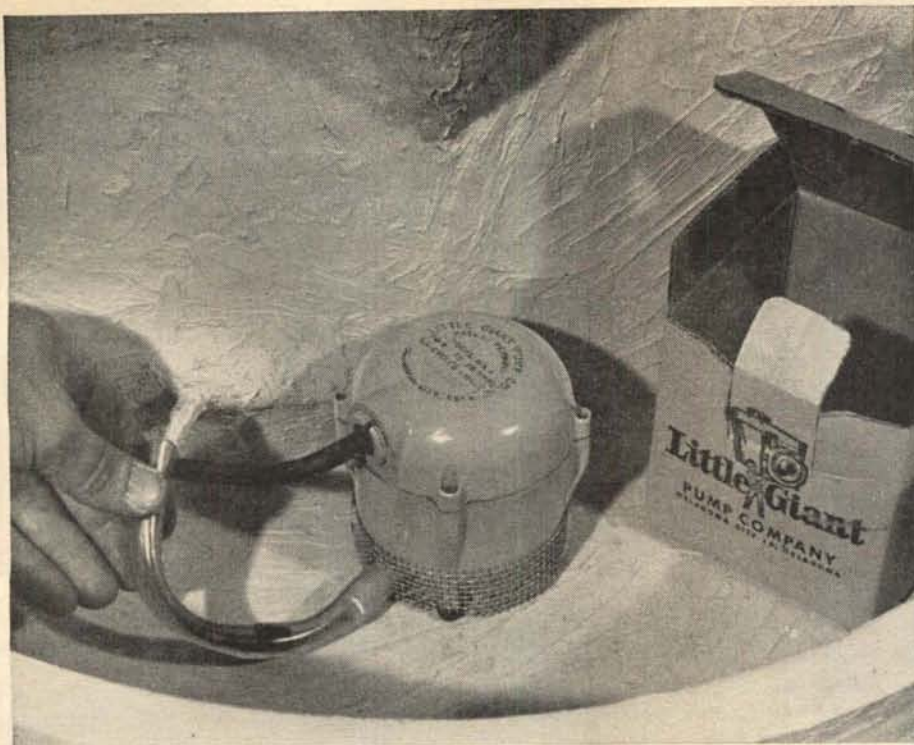
10. After fabric has been applied and set, patching compound, or auto-body filler, can be wiped on to give a "stone" look.



11. To assure that water drops off edge of bowls, lip must be attached as shown. Strips of Sculpt-O-Fab are used for this.

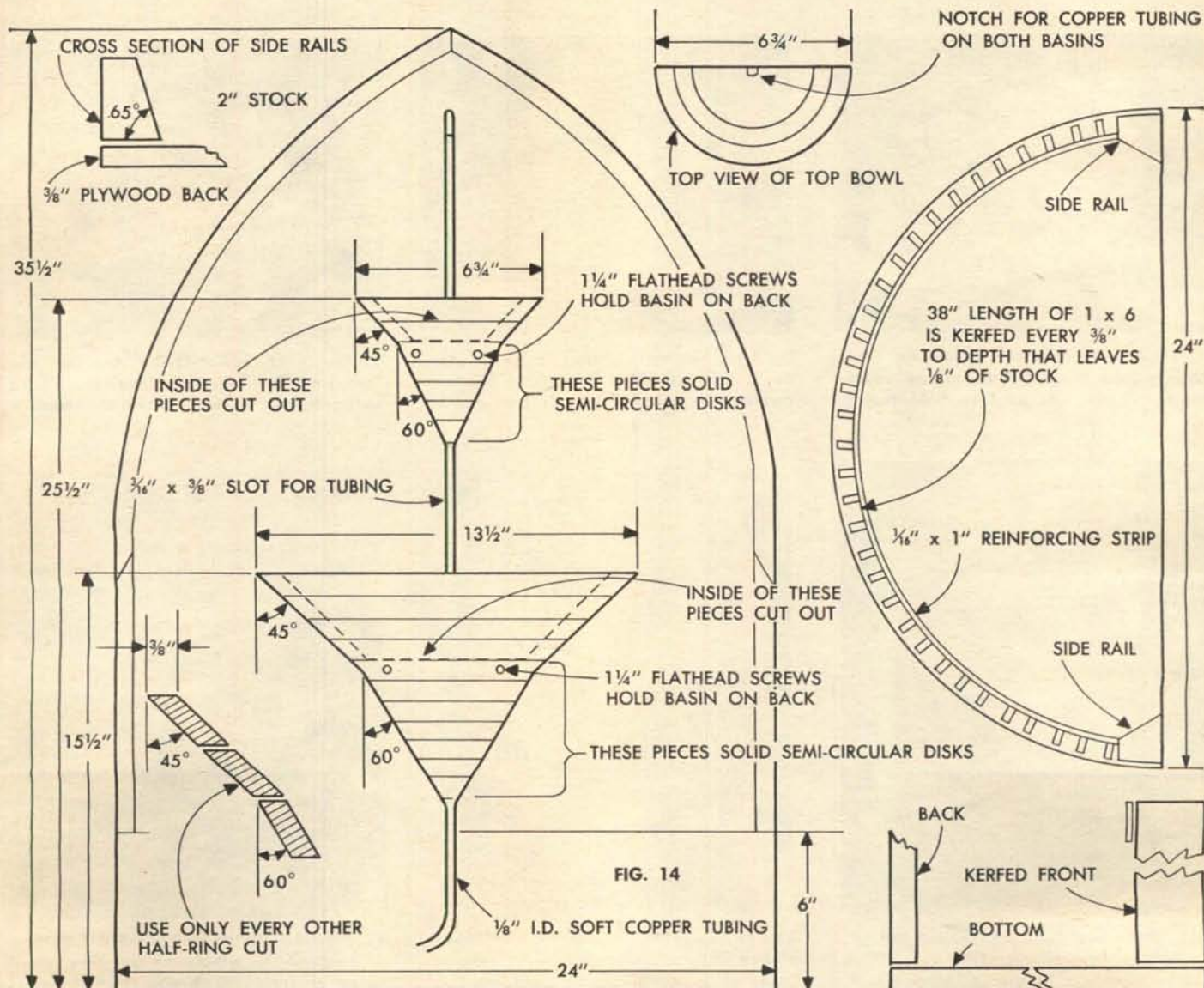


12. Attached lip then is blended with rest of fountain by wiping on patching compound or filler, which also strengthens it.



13. After fountain is hung on wall, or set on some suitable base, Little Giant pump is placed in bottom and plastic hose connects it to tubing, fountain is filled.

Ben Walters, Inc., 156 7th Ave., N. Y., 11. As an alternate, plastic auto-body patching compound can be used instead of Patching Compound. A bone-white material called Auto-Body Filler can be purchased from Hayes Co., 712 E. 31st St., Kansas City 9, Mo. Enough to do the fountain costs \$4.50; 2 qts. To cause the water to flow over the edges of the bowls properly a lip is made from a strip of Sculpt-O-Fab 1½ in. wide, Fig. 11. Patching Compound is applied on the top and underside, Fig. 12. Final step is to drop in a Little Giant Pump No. 1, or No. 1-12A, Fig. 13. Add water and start the fountain going. For pumps: Little Giant Pump Co., 3810 N. Tulsa, P. O. Box 7025, Oklahoma City, Okla. Should enough requests be received, full-size plans for the fountain will be made available. Δ Δ

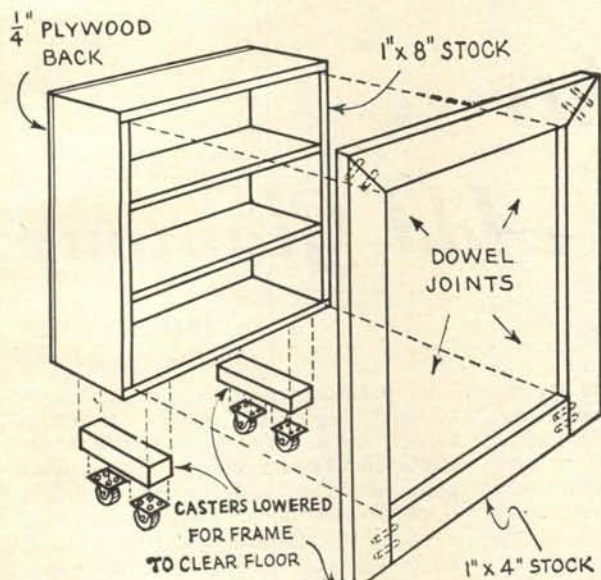


Hide-A-Door Bookshelf

UPSTAIRS BEDROOMS and finished attics often have sloping walls part way down from the ceiling, and a large storage area behind the short vertical walls. This interesting bookcase is designed to replace the usual short, unattractive door that provides access to that storage area. The bookcase is built of 1 x 8 pine shelving, with a thin plywood or hardboard back that is faced with a wide picture-style frame. The unit rolls out of the wall on casters. Dimension will vary with the size of the opening, but should be about $\frac{3}{4}$ in. smaller vertically and horizontally to allow plenty of clearance. If you are finishing an attic, skip one or more studs in the framing; in a finished room cut away the wallboard and remove one or more studs. Use a double 2 x 4 over opening. $\Delta \Delta$



The unit appears to be an ordinary recessed bookcase with a wide, attractive frame; yet it pulls out readily on casters to provide access to the storage area behind the wall.



No dimensions are given for the bookcase-door, as they will vary with each installation. Shelves can be 1 x 8s, 1 x 10s or 1 x 12s.

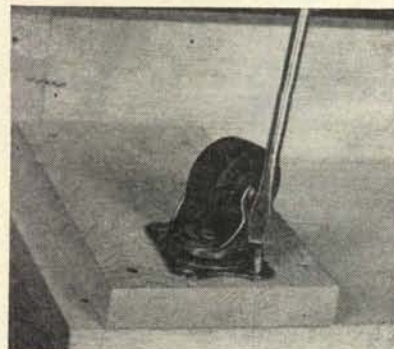


To keep bookcase from slamming against wall, use 2 x 4 blocks on the floor as shown. Space blocks to clear the casters.

Sides of cabinet are hidden, so simple butt joints are used, held with glue and countersunk screws.



Shelves are held in position for drilling for wood screws by using small finishing nails as indicated.



Casters are blocked up to adjust bookcase to correct height and to keep bottom clear of blocks on floor.



Garden lights positioned along edge of yard provide dramatic, glare-free illumination, highlight trees and shrubs, make the yard a beauty spot at night, summer and winter.



Closer view of row of lights shows how illumination accents shapes of shrubs.

Garden Lights

Add Glamour

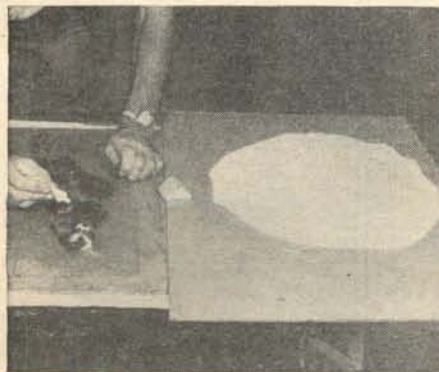
FRED STEBBINS



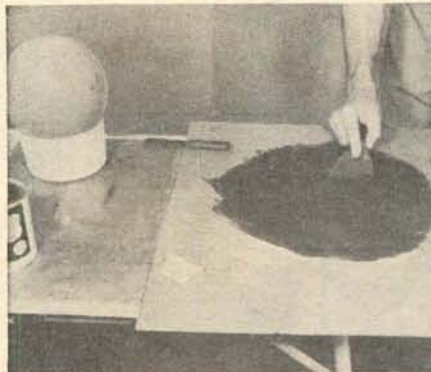
First step in making garden lights is to gather all material, blow up balloon to about 8 in. diameter, set it in container.

LANDSCAPING WITH LIGHT can add hours of beauty to any day, by illuminating flowers, shrubs and trees after dark. Even if your yard has few or no flower beds, and is simply bordered with shrubs and trees, it can become a fairyland at night by the proper use of light. A flood or spot can accent a tree or large shrub, smaller lights can shape and shadow shrubs and fences for dramatic effects. There are just a few basic points to keep in mind: First, do not overlight.

This produces nothing but a "used-car-lot" look. Pick out points of interest, such as a well-shaped tree, a colorful flower bed, a birdbath or piece of statuary. Experiment with a flood or spot on an accent spot, and keep other lights low and use small bulbs—25-watt lamps are ample—for edge-lighting the yard. Space the edge lights 12 to 15 ft. apart. Eliminate the need for repositioning lights by simply setting them in place and running extension cords to them until



Cut fiber-glass cloth in circle about 17 in. diameter, triangular block is about 1 1/2 in. on a side. Use five gobs of Genie plastic.



Spread plastic on cloth, using putty knife to impregnate material thoroughly. Work on smooth surface, such as hardboard.



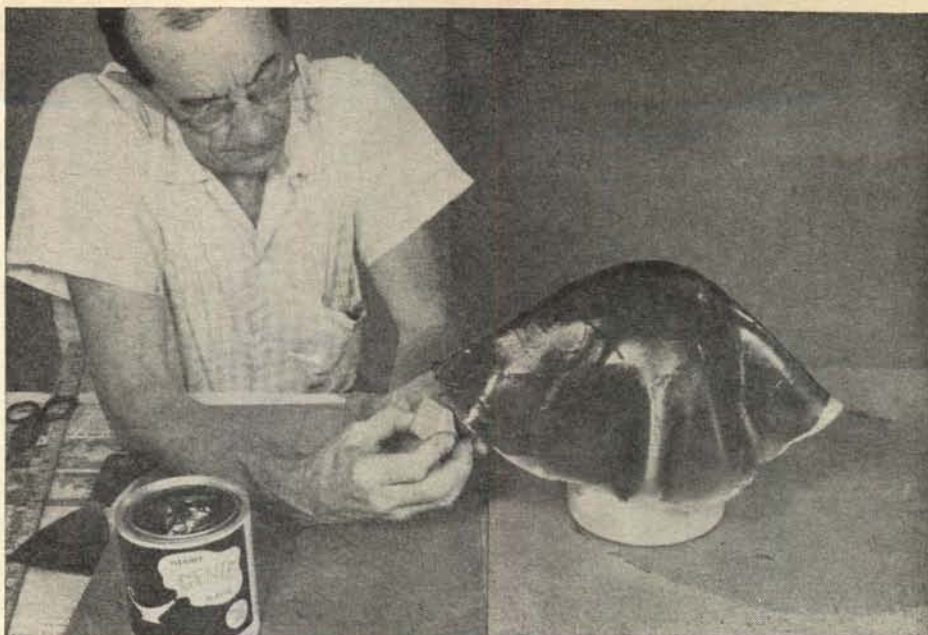
Impregnated cloth then is spread over balloon, hands are used to shape and fold material. About 6 folds work best.

Triangular-shaped block is inserted at back of shade, between cloth and surface of the balloon, makes space for light fixture.

the positions have been determined.

Purchased lights for a yard can be expensive, but three of the lights described in the photos and captions can be made from one qt. of Genie Flexible Plastic that costs \$3.25 including a tube of non-toxic cream hardener. The material is available at many auto-supply houses, as it originally was developed for auto-body repair, or can be ordered direct from Hayes Co., 712 E. 31st St., Kansas City 9, Mo.

Also required for each lamp is 1 weatherproof insulated socket with 6-in. leads, 26 in. of black plastic pipe $1\frac{1}{4}$ in. dia., 1 90-deg. $1\frac{1}{4}$ -in. elbow of black plastic and a piece of fiberglass cloth 17 in. square. The latter items can be purchased at hardware stores or mail-order houses. $\Delta\Delta$



Dull look of plastic shows it is partly cured, now can be trimmed to desired shape with snips. Plastic is allowed to set overnight.



Next step is to cement plastic-pipe elbow in shade, using triangular block to position it, use plastic for cement.



Weatherproof socket with pigtail is fitted in pipe elbow, then length of $1\frac{1}{4}$ -in. plastic pipe slips in elbow for column.



Painting of unit with outdoor enamel is best done before it is installed, to avoid getting paint on foliage. Use a dark color; foliage green was found most satisfactory as it permits lights to blend with greenery, makes them almost invisible in daytime.

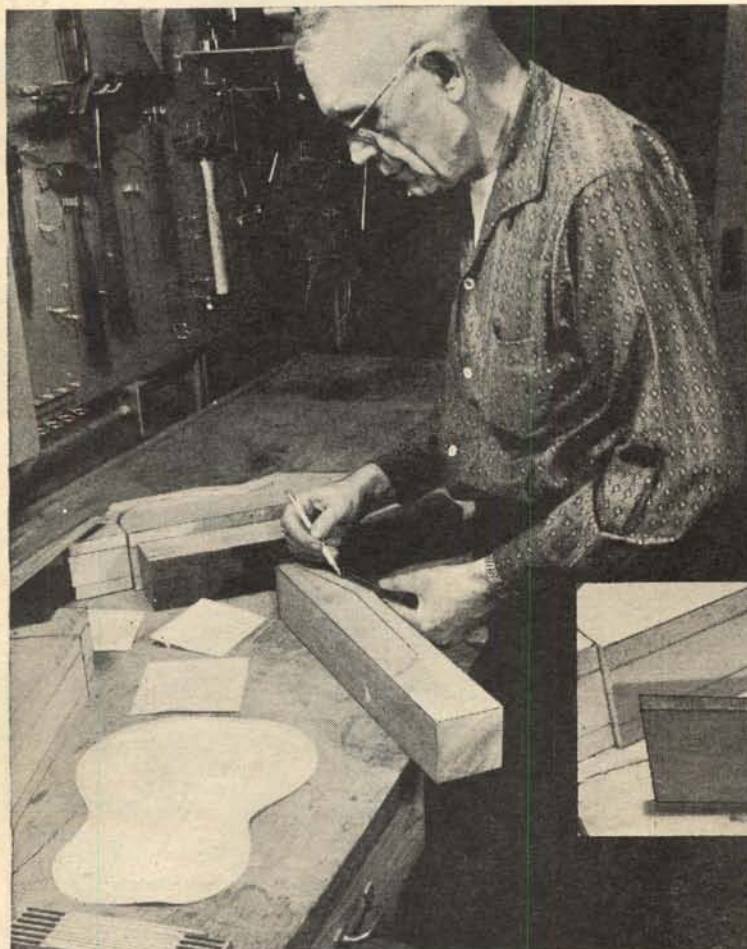


Other than to edge-light yard, lamps are ideal for illuminating spots such as here where sidewalk has step down, in dark area.

BARITONE UKULELE

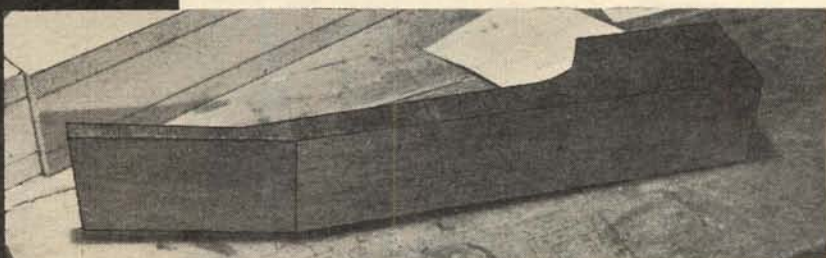
CHESTER WATTS

PART II



FOR THE TOP OF THE UKULELE, $\frac{1}{8}$ -in. mahogany is used, but it is planed, scraped and sanded to a thickness of $\frac{3}{32}$ in. The tone of the instrument will depend greatly on the top, so the thinning should be done accurately. For a jig, nail two straightedge strips of wood to two blocks, spaced $\frac{3}{32}$ in. apart. Slipping the thinned top through the space will show the areas that require thinning. Cut out the top, cutting it $\frac{1}{8}$ in. oversize all around. Two struts are fitted to the top, as indicated in Fig. 7, as well as a reinforcing strip located under the position of the bridge, Fig. 5.

The neck is cut from a turning block, Fig. 1. The top surface of the neck, where the fingerboard will later be fitted, must be straight and flat. Leave the neck about $\frac{3}{16}$ in. wider than the fingerboard for the present. Round the underside of the neck with knife and file, Figs. 2 and 3, using your eye to guide you. Do not complete the neck at this time.



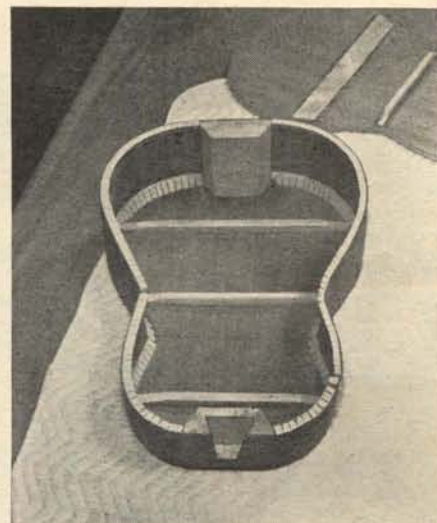
1. Neck is traced on mahogany turning block, cut out as indicated. Knife, rasp and sandpaper finish shaping the neck.



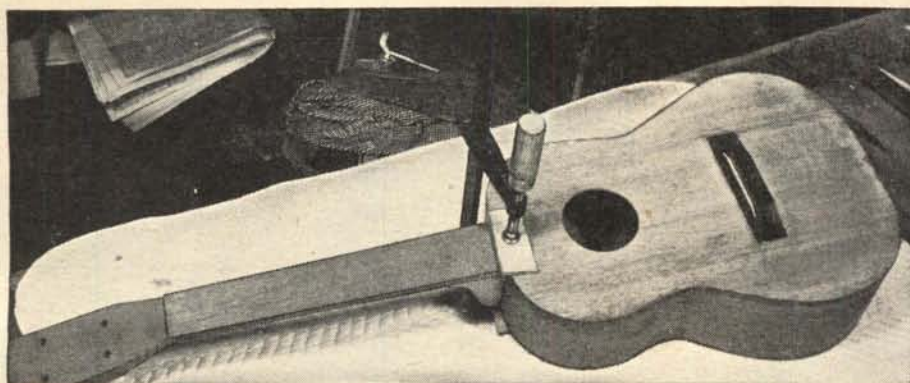
2. Shape of the neck is determined pretty much by eye. Top surface should be flat and smooth, wider than fingerboard.



3. Tenon is cut on neck as per drawing, fit should be slightly loose so top of neck and body can be aligned.



4. Mortise in end block is cut carefully, but need not be precise. Tenon on neck is positioned with glue and shims.



8. Top of body and top of neck must be exactly flush. When gluing together, clamp with block as shown to assure alignment.

completely, sand the strip so it is flush with the top and the ribs.

Next, finish the mortise and tenon of the neck and end block. Make the fit slightly loose so thin shims can be used to position the neck so the top of it and the top of the body are absolutely flush, Fig. 8. Also, the center line of the neck should align exactly with the center line of the body. Heat the mortise and tenon before applying glue, and apply a moderately thick coating of glue, as the strings place considerable strain on the neck. The fingerboard is glued to the top of the neck so that the fourteenth fret (counting down from the narrow end), aligns with the edge of the top of the body. The distance from the ivory insert of the bridge to the far end of the fingerboard must be exactly 19-3/16 in. The slightest variation will cause the ukulele to play out of tune. Use as many clamps as possible, Fig. 9, and protect the surface with strips of wood. The nut, Fig. 7, may be made of ivory, bone, plastic or hard wood. It is glued at the narrow end of the fingerboard and projects above the board about 1/8 in. Notch the nut to receive the strings at 1/4-in. spaces, with the outside notches 1/8 in. from the ends of the nut. Use a rat-tail file to round the notches, so the strings are 1/64 in. above the first fret when they are stretched between bridge and nut. File the nut down so about one half the diameter of strings projects above the top of the nut.



9. Fingerboard must be clamped solidly to the neck. Use cushion blocks, keep them clear of frets as they break easily.

Drill 1/4-in. holes for the pegs, Fig. 7, and fasten them by means of the screws in the ends. The thumb nuts are fastened to the pegs with screws at the opposite ends, Fig. 10. When the strings are in place they should be 1/8 in. above the fret nearest the bridge. If they are too high, the ivory insert of the bridge is filed down. Do not notch the bridge.

However, before pegs and strings are fitted, sand the entire instrument with fine garnet paper and remove any dirt, pencil marks, etc. Remove all sanding dust, then apply a thin coat of violin filler. Use an ox-hair brush or piece of wool cloth. The latter is the easier method. When the filler is dry (which requires 3 days to one week), rub it down with steel wool and apply a second coat. Apply no filler or varnish to the fingerboard. Rub down the second coat of

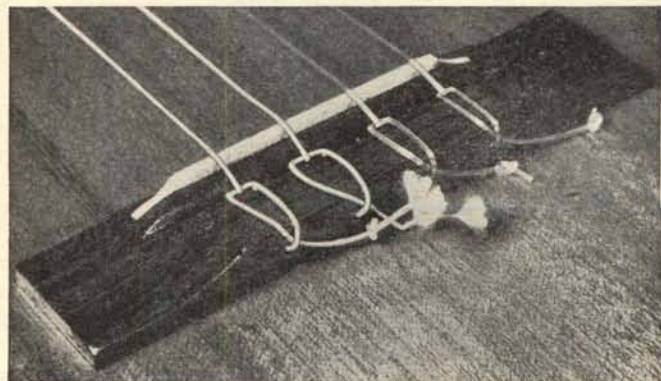
filler and apply varnish in the same manner as the filler. Allow 3 to 10 days for each coat of varnish to dry, and apply as many coats as desired. (This may be up to 8 or 10.) The last coat of varnish is rubbed down with a paste of rottenstone and water.

Now, fit the pegs and strings, tying the strings as shown in Fig. 11, tune the instrument—best to buy a book on the baritone uke at your local music store—and start playing.

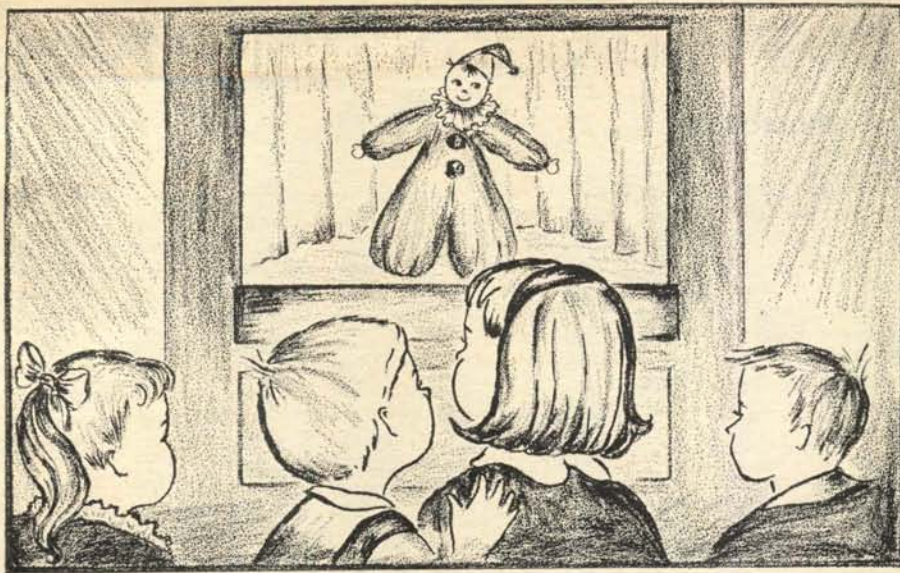
As stated in part I of this article, a kit containing difficult to find items: fingerboard, bridge, pegs, violin sealer and varnish, strings and special violin glue, is available to WORKBENCH readers for \$8.50 from Watts Violin Shop, 4801 E. 31st St., Kansas City 28, Mo. Full-size plans and instructions are \$2.00 from: Ukulele, WORKBENCH, 543 Westport Road, Kansas City 11, Mo. Δ Δ



10. Pegs are fitted in 1/4-in. holes drilled near end of neck as indicated. Tightening screw in each peg holds it securely in place. Plastic thumb nuts are held by another screw.



11. Strings are threaded through the bridge and over the ivory insert as indicated. Simple knot is tied in each string to prevent unraveling or slipping through knot.

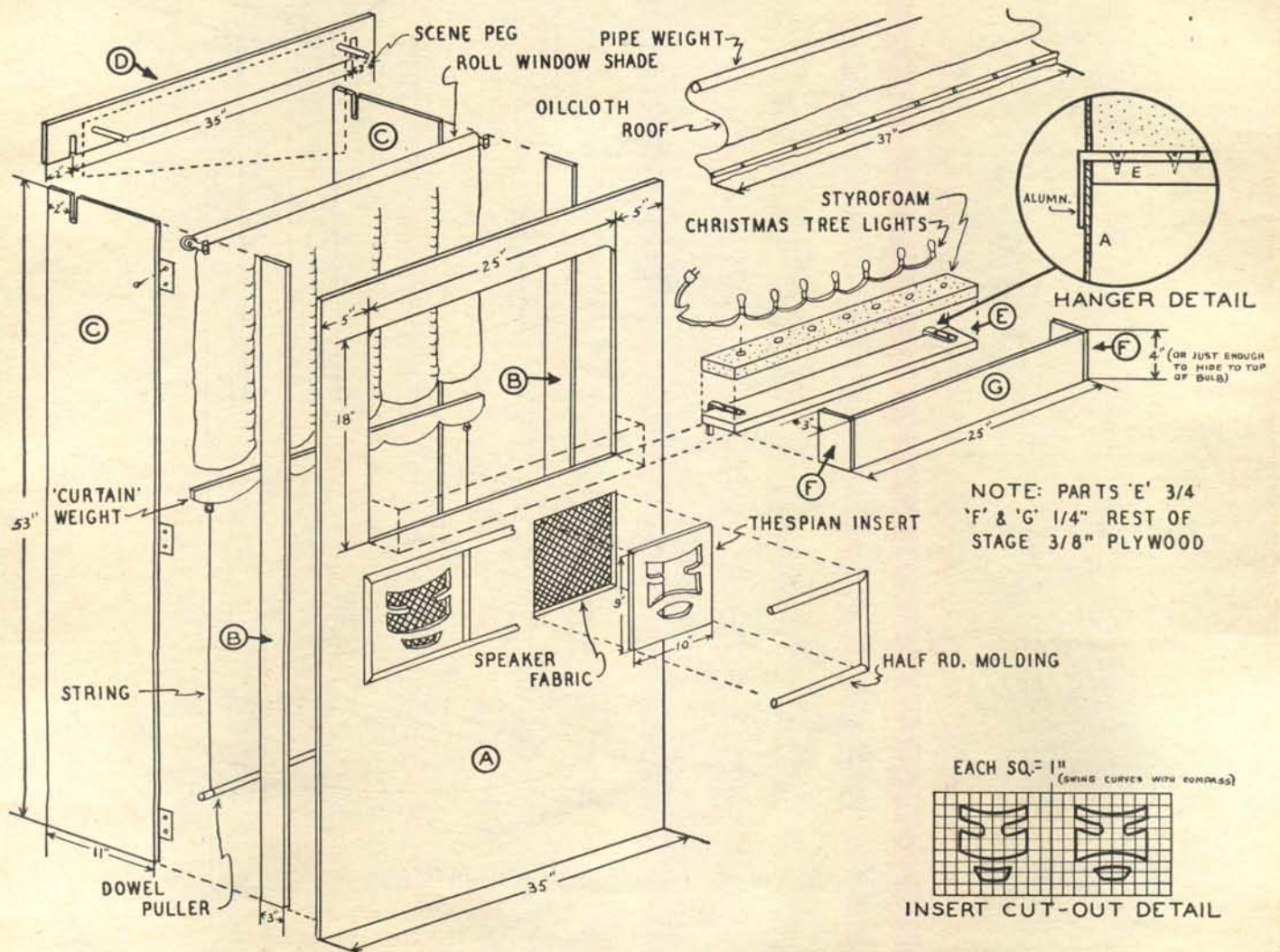


PUPPET STAGE

M. H. SLUTZ

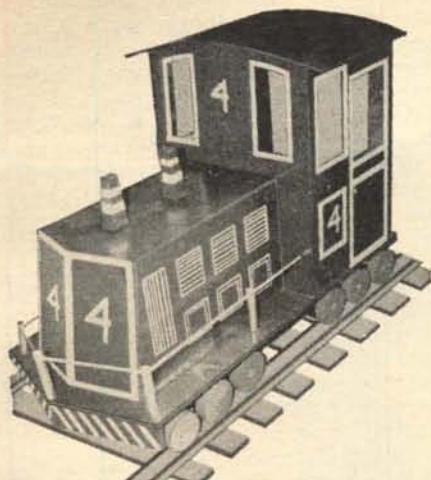
BUILT ENTIRELY FROM PLYWOOD and designed to fold neatly for storage, this puppet stage will entertain youngsters for hours. A roll-type window shade becomes the curtain, and the two cutouts in the front of the stage, that are covered with grill cloth, permit the voices of the puppeteers to be carried out to the audience. Puppeteers kneel, or sit on low stools while operating the puppets.

A "roof" is fitted on the stage to seal in the illumination from the Christmas-tree light footlights. Allow the roof to project at least an inch beyond the sides of the stage to be sure of sealing in the light. Scallop the lower edge of the window shade curtain, and paint "pucker" lines on it to simulate the folds of a curtain. Glue a piece of plywood to the back side of the lower edge and scallop it to match the shade. Hang a length of dowel on two cords from the shade so the puppeteers can raise and lower the curtain from below the stage opening. Backdrops to provide atmosphere are painted on cardboard or heavy cloth and hung on the pegs on part D. Side wings C are hinged with three door hinges to rails B. The rails first are nailed and glued to the front member A. $\Delta \Delta$



Toy-Box Locomotives:

C. L. WIDDICOMBE

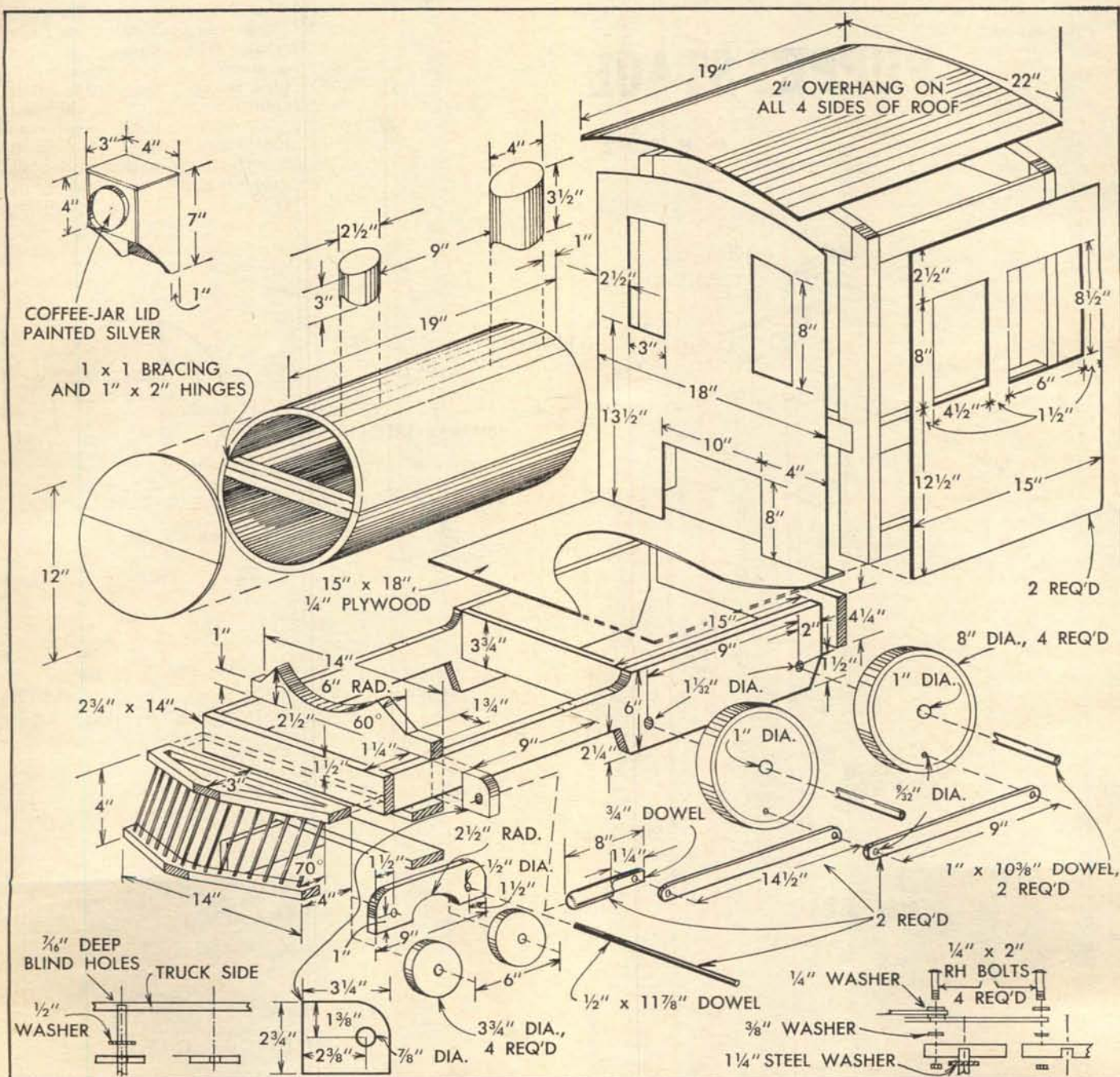


BIG ENOUGH TO PLAY IN, and with ample storage for toys, these locomotives will delight any young Casey Jones. One of the locomotives is for steam fans, the other is a more modern diesel-engined switcher. Both cabs are identical; the undercarriage, wheel assemblies and forward part of the units are different.

Assembly has been kept as simple as possible; the only problem might be in making the wheels. They can be rough-cut on a bandsaw, then taken to someone who has a lathe and finish-cut. Rubber-tired wheels

from wagons, tricycles and the like, of approximate size, also could be used. The railing around the engine of the diesel is made of 6-in. lengths of $\frac{1}{2}$ -in. dowel, drilled to accept lengths of $\frac{1}{8}$ -in. dowel. The paint job can be varied to suit the builder; the "engineer" also might have some ideas about this if he has been studying various locomotives on nearby railroads, in magazines and catalogs or on television.

To give the locomotives a dual purpose, the boiler on the steam unit and the engine compartment on the



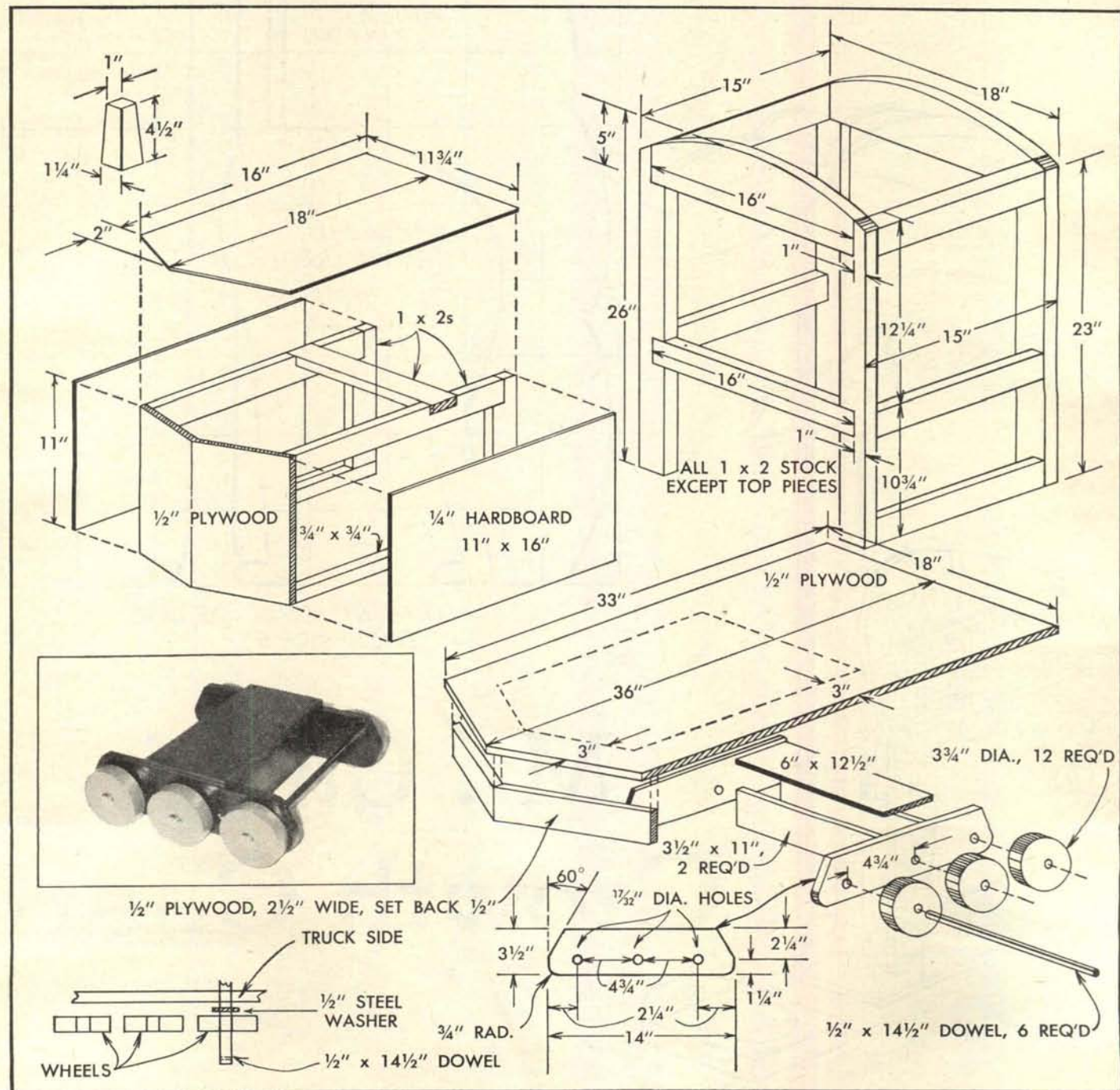
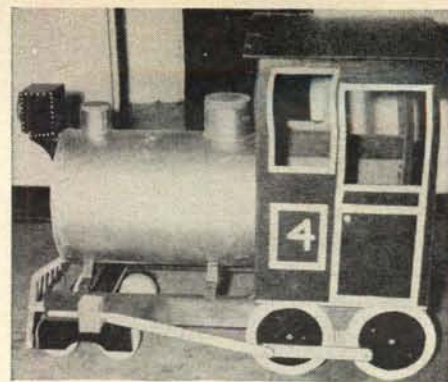
Steam and Diesel

diesel unit can be utilized for storage. A framework of 1 x 2s is suggested for the fiberboard drum used for the boiler of the steam locomotive, while the top of the engine compartment on the diesel simply can be fitted with hinges to convert it to a toy box.

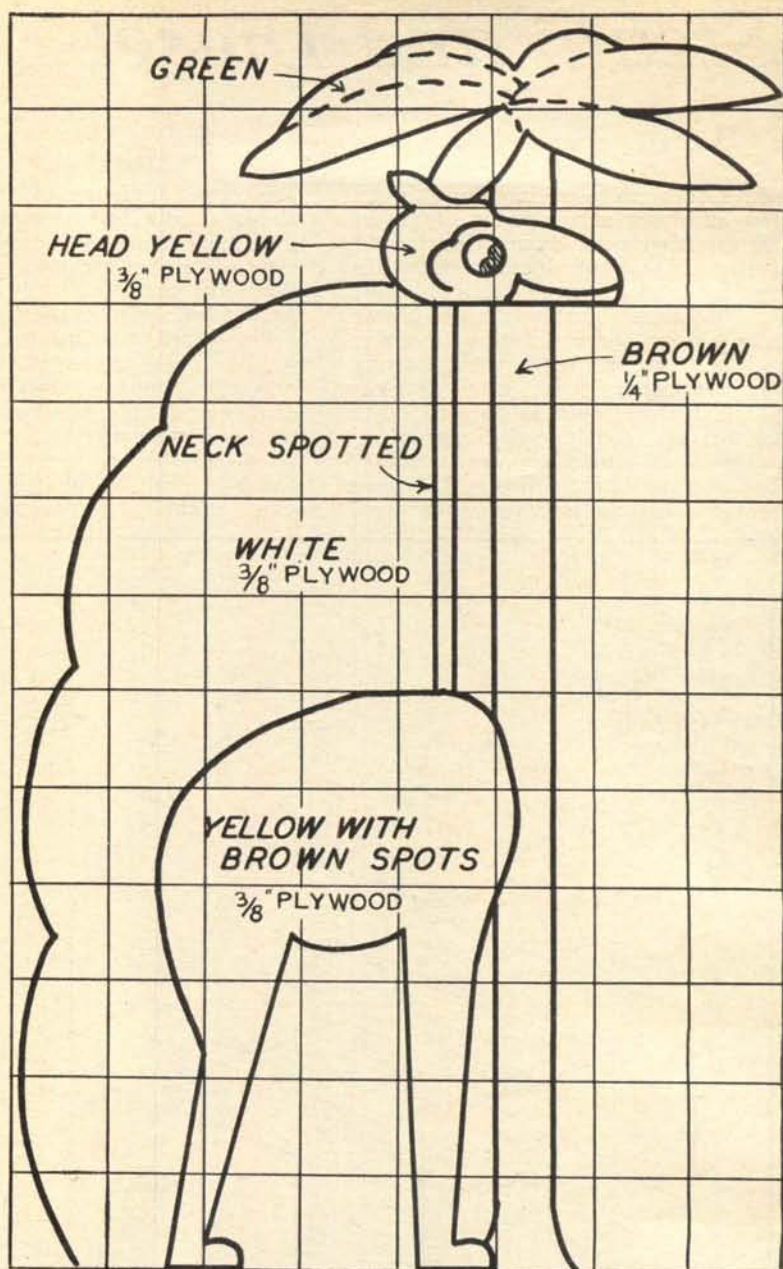
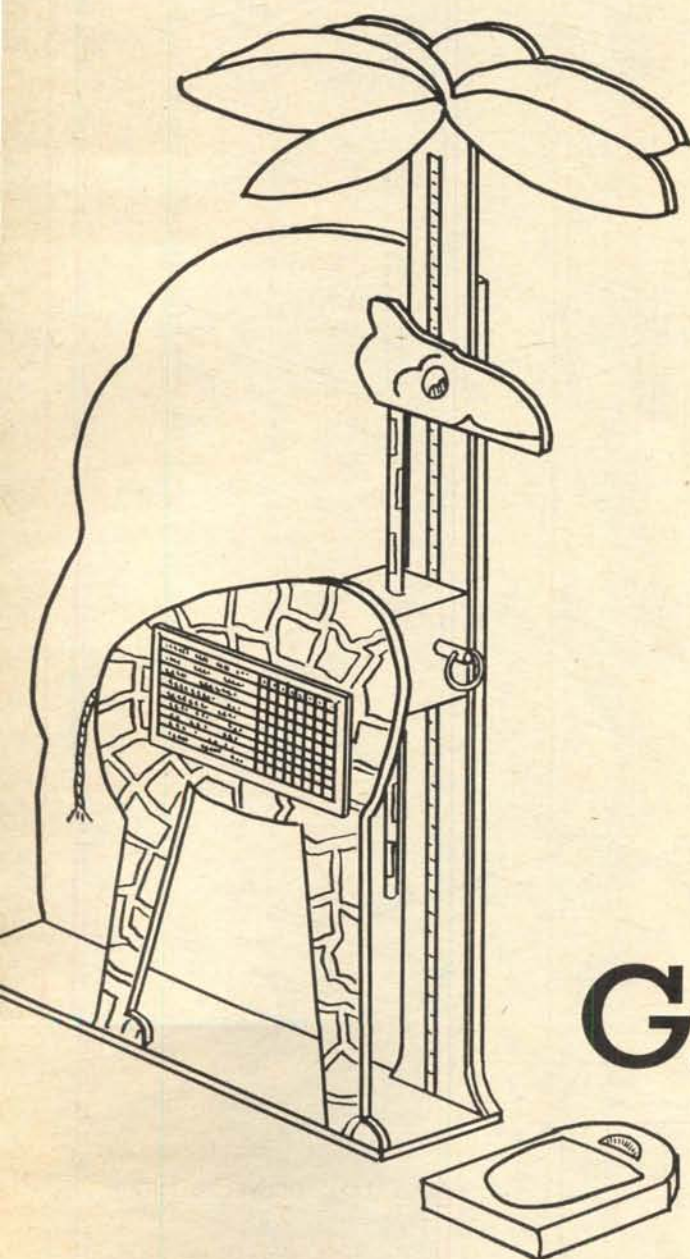
In the case of the fiberboard drum, it is suggested that it be heavily shellacked before it is painted black or silver, to help weatherproof it. All parts of either locomotive should be well sealed to protect against weather as, no doubt, they will spend

sometime outdoors. Although not shown, a simple box seat fitted with a cushion could be located on either side of the locomotive cab so that the "engineer" and "fireman" can be seated, as in a real locomotive.

For added authenticity, Dad might want to make the light on the steam unit a real one, powered by flashlight dry cells. A light also could be added to the diesel unit. Lights and levers inside the cab would add the final touch of realism, plus a railroaders' cap for the young engineer. $\triangle\triangle$



Growing up is fun with
Mr. Giraffe who weighs
you, measures your height
and shows good-health rules.



DIMENSIONAL DETAIL
EACH SQ. = 5"

Mr. Giraffe Growth Chart

M. H. Slutz

START CONSTRUCTION of Mr. Giraffe by making patterns from the squared drawings. The cloud background and the giraffe body and head are $\frac{3}{8}$ -in. plywood, the tree is cut from $\frac{1}{4}$ -in. plywood. The base of the unit is a 6-in. strip of the $\frac{3}{8}$ -in. material. For

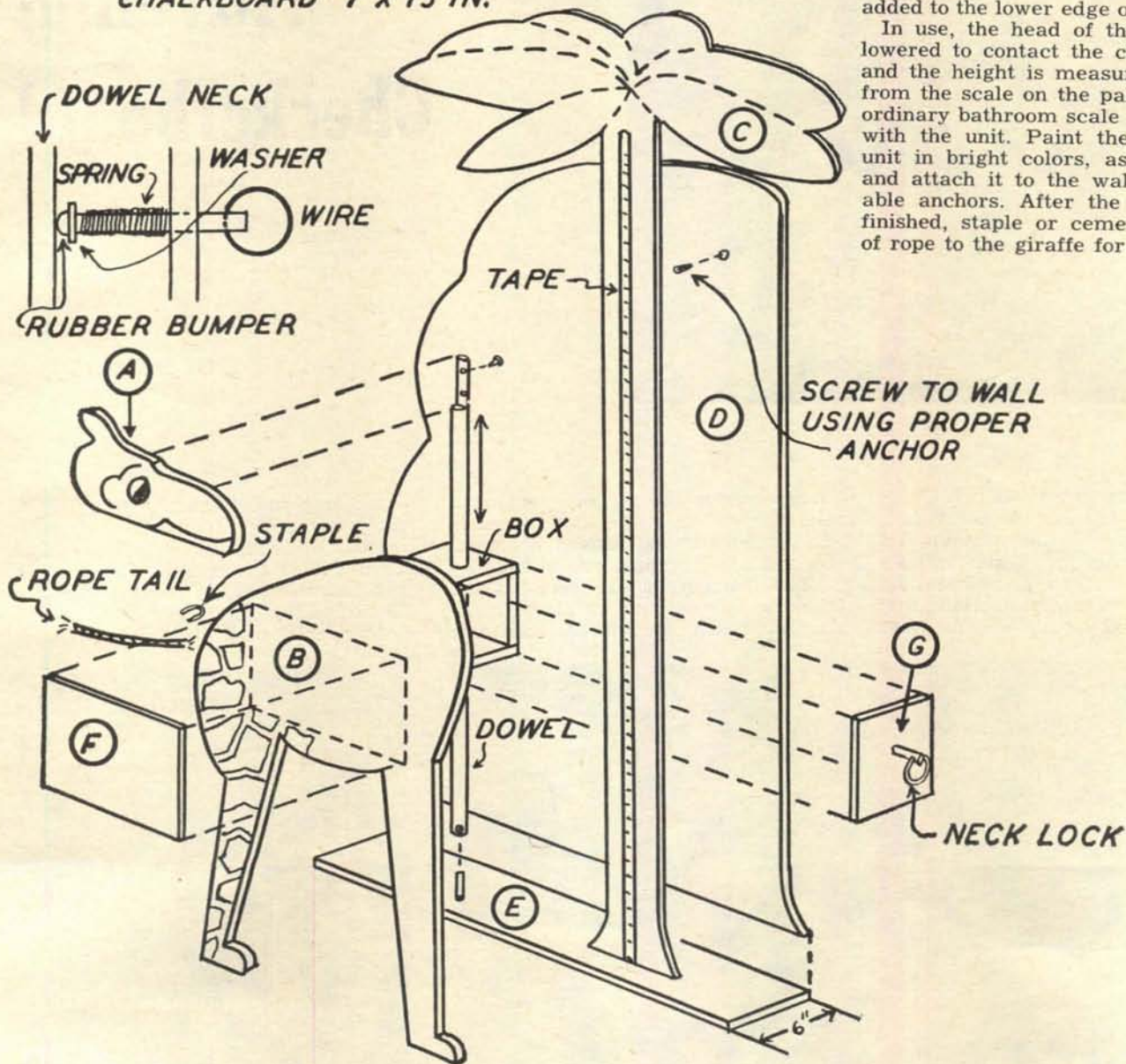
the neck of the animal, use a 30-in. length of $\frac{3}{4}$ -in. dowel. The box through which the neck passes is a 5-in. cube, the neck-lock being made as indicated and fitted in the center of a 5 x 5-in. square of plywood and attached last to the cube. The lock-

ing box can be raised or lowered according to the child's height so that the lower edge of Mr. Giraffe's head is just below the top of the child's head at its lowest position. The dowel neck is cut to provide a half-lap joint for the head of the animal. A block of wood can be attached to the back of the head to just clear the measuring tape on the tree trunk, and so permit easier direct reading. The measuring tape can be cloth or metal, and the lower $\frac{3}{8}$ in. is cut off to compensate for the thickness of the base of the unit. For the blackboard on which the health habits are charted, paint a piece of $\frac{1}{8}$ -in. hardboard with blackboard paint. White paint is used to label and line the chart, while the "habits" can be printed on heavy paper then cemented to the board. Coat the paper with several layers of clear shellac or varnish. A chalk tray can be added to the lower edge of the board.

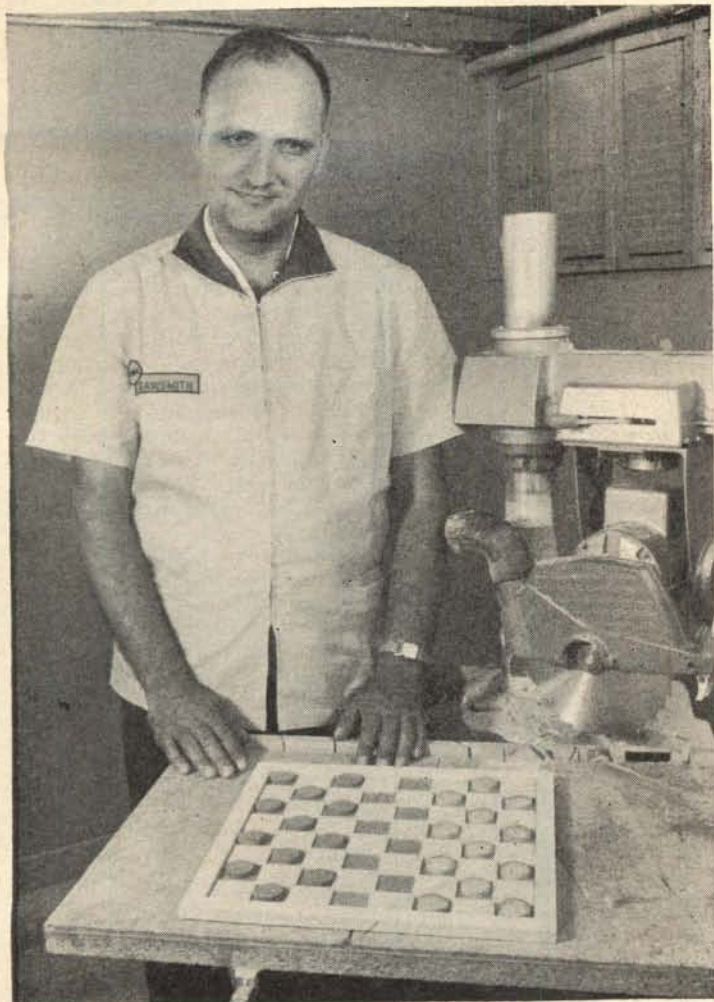
In use, the head of the giraffe is lowered to contact the child's head, and the height is measured directly from the scale on the palm tree. An ordinary bathroom scale can be used with the unit. Paint the completed unit in bright colors, as suggested, and attach it to the wall with suitable anchors. After the painting is finished, staple or cement a length of rope to the giraffe for a tail. $\Delta \Delta$

MR. GIRAFFE'S GOOD HABITS	S	M	T	W	T	F	S
I BRUSHED TEETH TODAY							
I COMBED HAIR TODAY							
I CLEANED NAILS TODAY							
POSTURE GOOD TODAY							
FACE WASHED TODAY							
MY WEIGHT TODAY IS							
MY HEIGHT TODAY IS							

CHALKBOARD 7 X 13 IN.



PARTS JOINED WITH GLUE & FINISH NAILS



1. Completed traveling checkerboard is shown by Gene Garrison "Sawdust Party" leader. Only tool used to make the board was the radial-arm saw.

Traveling Checkerboard

FRED STEBBINS

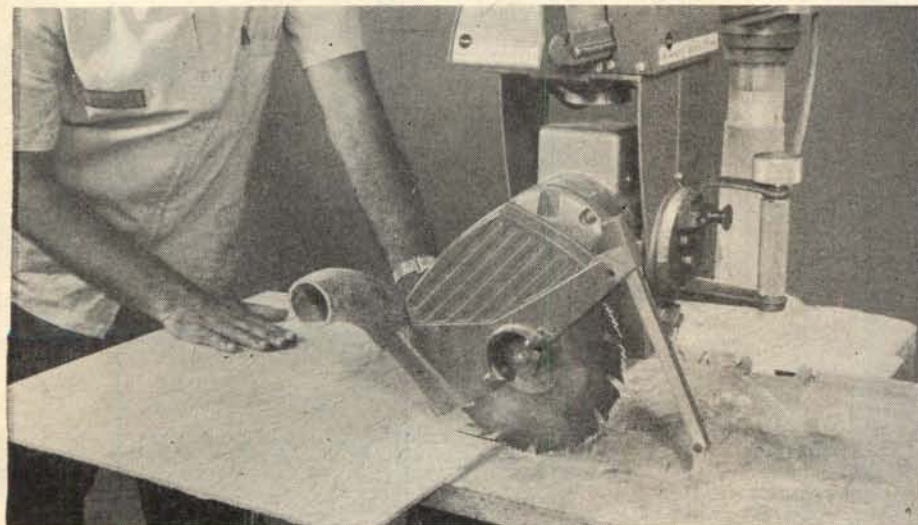
WORKBENCH RECENTLY ASKED Gene Garrison, SawSmith demonstrator, and conductor of many successful "Sawdust Parties", to design an item typical of this type demonstration. The project had to be something that can be finished in one evening, and

done entirely on a radial-arm saw. Gene came up with this traveling checkerboard, and proved his point by making it in just one evening.

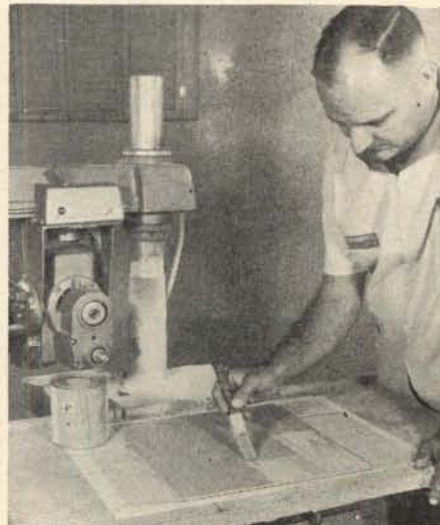
The checkers fit in recesses, so they do not slide out of place, making the board ideal for use in a car,

train or plane. Because of the positive positioning of the checkers, the board also is ideal for blind persons. Drill a hole through the centers of one set of checkers so they can be identified by touch.

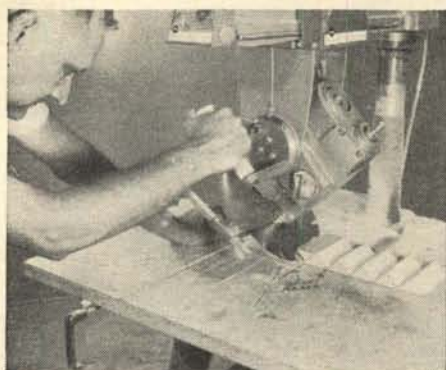
Materials cost is nominal; you



2. First step in making the traveling checkerboard is to cut out the base from $\frac{1}{4}$ -in. plywood. Set the saw for outboard rip and cut the base $13\frac{3}{4}$ in. square. Note guard.



3. Keep the board a one-evening project; use a fast-drying latex-base paint.



4. Start at one end of piece of stock $1\frac{1}{4} \times 5 \times 22$ in. clear pine, make series of 45-degree bevel cuts.



5. With saw in inboard-rip position, set blade about $\frac{1}{8}$ -in. from fence, then carefully feed V-groove stock into blade.



6. Mark $\frac{1}{2}$ -in. border around base, then draw diagonal from corner to corner. Fit inlay pieces, glue them from diagonal out.

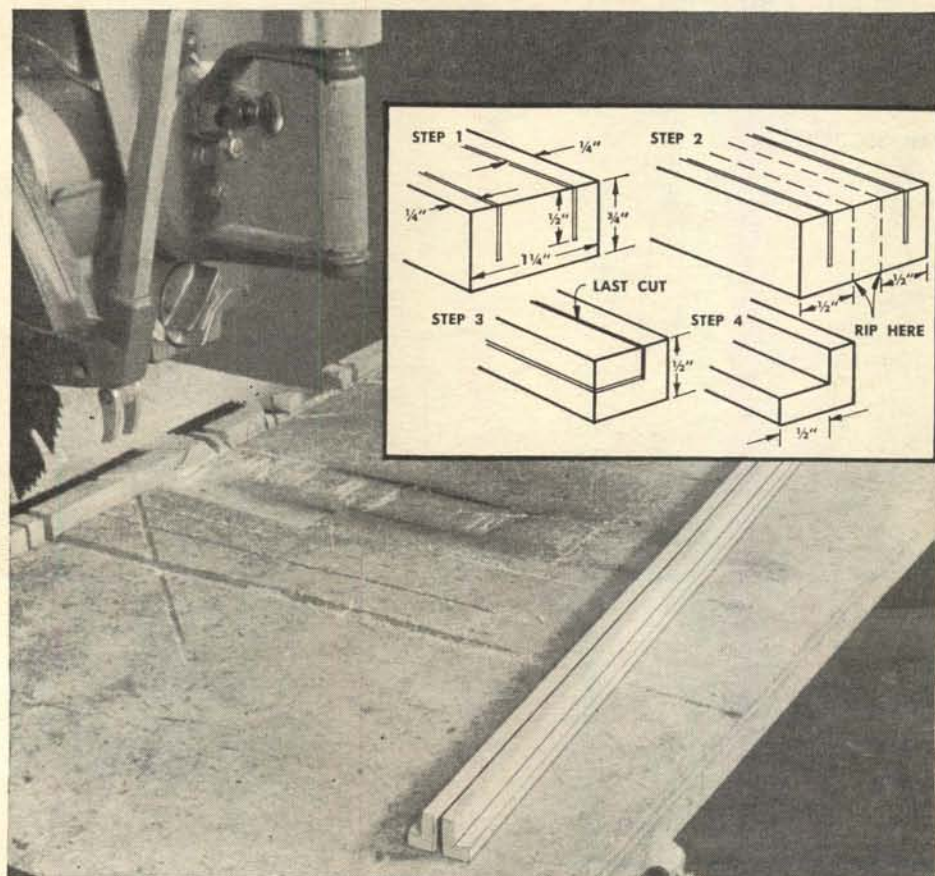
may find all you need in the scrap box. The base requires a piece of $\frac{1}{4}$ -in. plywood 14 in. square, inlays are cut from a piece of white pine measuring $1\frac{1}{4} \times 5 \times 22$ in. Molding for the edge of the board requires a strip of clear pine measuring $\frac{3}{4} \times 1\frac{1}{4} \times 30$ in. Also required are glue, a small amount of bright-color latex-

base paint, a small amount of clear varnish and fine sandpaper.

One tool other than the radial-arm saw can be used; an orbital sander will quickly smooth the glued-on inlays to eliminate any variations in thickness which result when the strips are sawed from the block. Finish board with clear varnish. $\Delta \Delta$



7. Top of board is complete; there are four spaces each way. Sand glue-on inlay strips to eliminate variations in thickness.

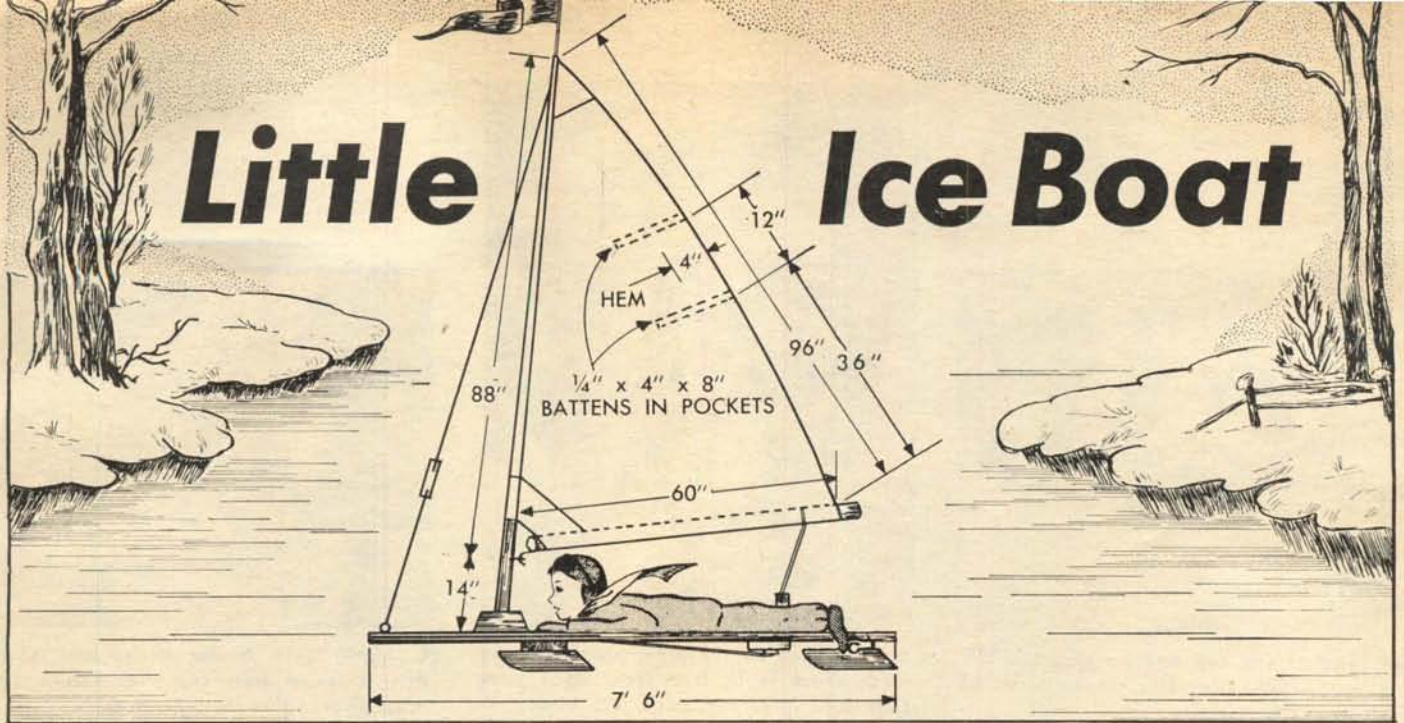


8. Simple, L-shape molding is made by making two cuts in piece of pine stock measuring $\frac{3}{4} \times 1\frac{1}{4} \times 30$ in., as per sketch. Stock then is ripped in half lengthwise, cut again.



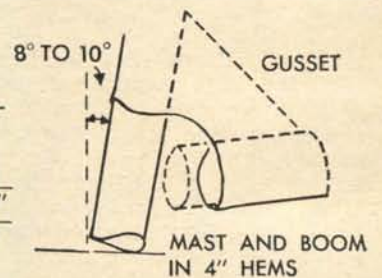
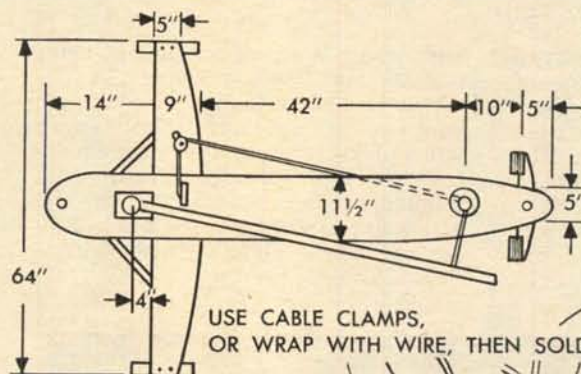
9. Cut 24 checkers $\frac{1}{4}$ in. thick from $1\frac{1}{4}$ -in. closet pole, plus a few extras.

Little Ice Boat

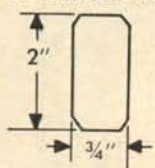


HI SIBLEY

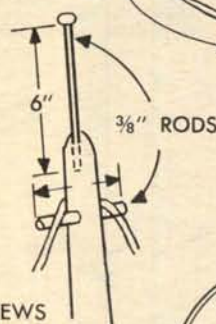
CONSTRUCTION OF THIS speedy little craft is simple, the "hull" being a length of 1 x 12, the crosspiece a 1 x 10. The mast is cut from a 2 x 2-in. piece of lumber and is shaped round or tear-drop with a plane and patience. A length of $\frac{3}{8}$ -in. rod is fitted through the mast near the top over which stainless-steel, $\frac{1}{8}$ -in. wire rope stays are looped. This rope will have to be purchased from a boat dealer, and the loops made by using small cable clamps, or by wrapping the cable with wire, then soldering. Note that the main sheet, (a length of sash cord), passes through a tube in the deck which is flared at both ends. The tube can be $\frac{1}{2}$ -in. galvanized pipe. Unbleached muslin is used for the sail. Mast and boom fit in 4-in. hems. Battens, (strips of wood to help shape the sail), are fitted in pockets sewn on as indicated in the illustration. $\triangle \triangle$



BOOM SECTION

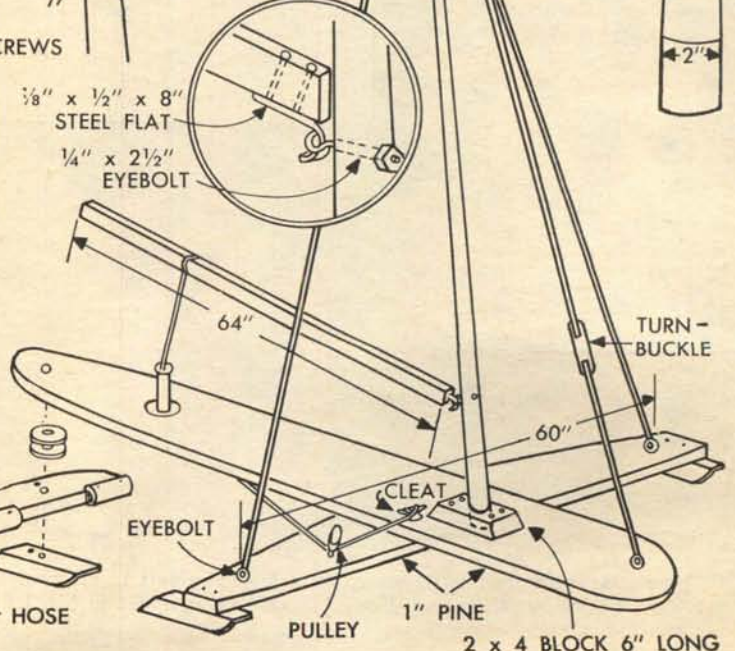
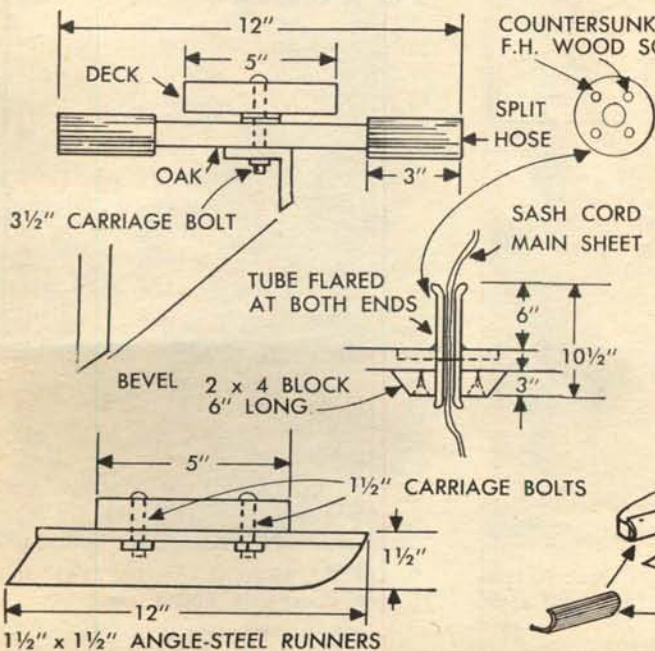


USE CABLE CLAMPS, OR WRAP WITH WIRE, THEN SOLDER

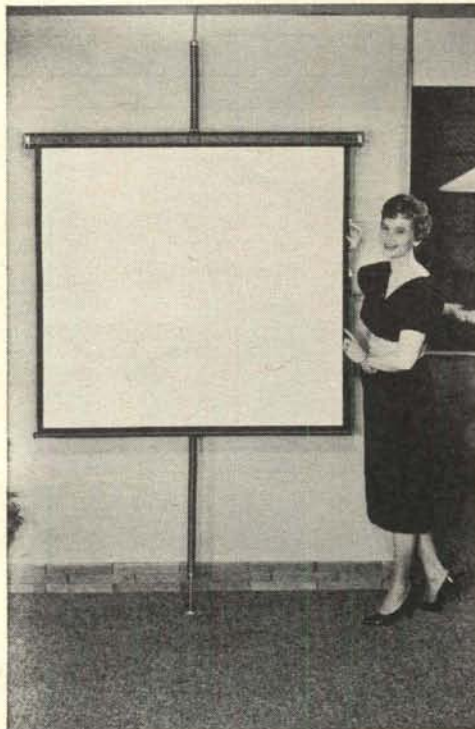


ALTERNATE MAST SHAPE

MAST 2" TAPERED TO 1"



Hide-Away Movie Screen



HERE IS THE SOLUTION to the problem of having a movie screen handy when you need it. No more need to rummage in the attic or closet when you want to show slides or movies; the screen is always available, "hiding" behind a decorator plaque. The panel, as in the righthand photo, is complete with brackets and flowerpots. When you need the screen, the

spring-loaded pole is turned around, the screen case is lowered to a horizontal position and repositioned to proper viewing height. The screen then is lowered like a window shade to provide the shape you want, either square or rectangular. Standard screen is 40 x 40 in., made of a glass-beaded fabric. Cost is \$26.95 from Da-Lite Screen Co., Warsaw, Ind.

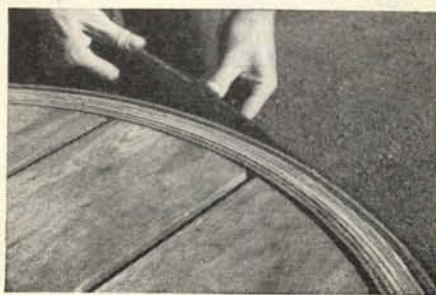
Enlarging A Round Table



To enlarge the diameter of a round table I laminated 1/4-in.-thick strips of wood around its perimeter. This not only provided the necessary increase in size, but also added to its appearance. The thin strips are

not difficult to bend around a 3 or 4-ft. circle, especially if you bend, glue and nail as you go. Stagger the joints and don't worry about getting the top edges flush with the table. This is done easily by sanding after the glue on the strips is set.

R. J. DeCristoforo, Los Altos, Calif.



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ALL-PURPOSE NYLON STRAPS

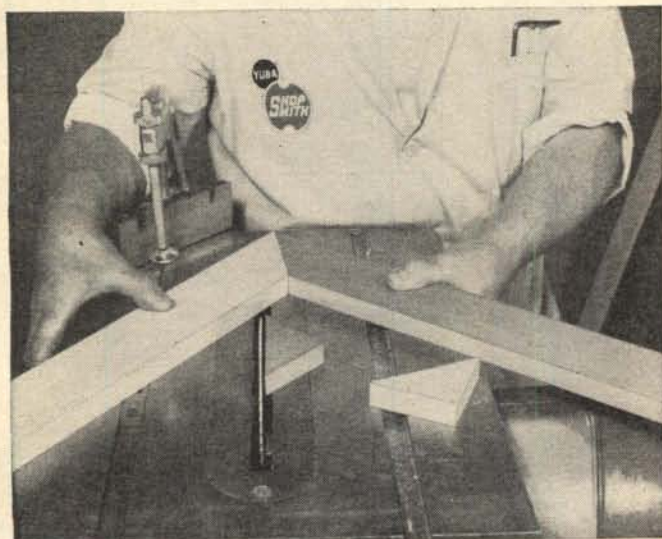
1 3/4" wide. Complete with Snap-Fasteners & Hardware • Tie-Down Straps • Tow Cables • Boat Slings • Hoist Sling, Etc.
ADJUSTABLE IN 10, 12 & 15 FT. LENGTHS

	5,000 lb. test	6,000 lb. test	8,000 lb. test
10 Ft.	3.50	4.00	5.00
12 Ft.	4.20	4.80	6.00
15 Ft.	5.25	6.00	7.50

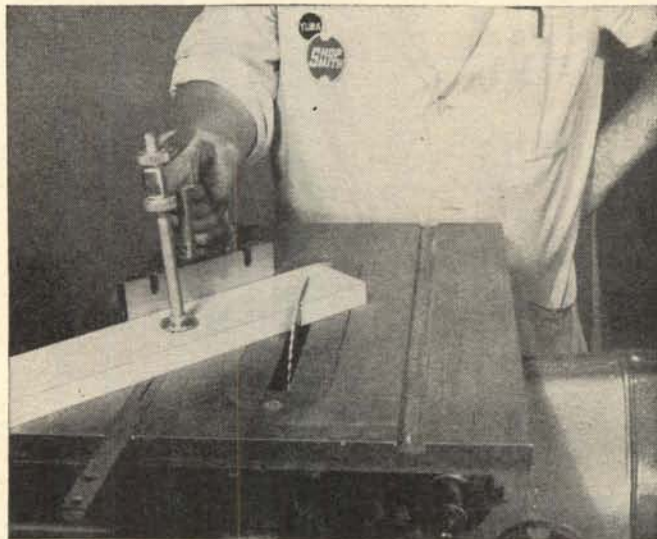
Super-strength ALL NYLON STRAP does hundreds of jobs—use them for boat tie-down, truck and trailer tie-downs—hoists for motors or other heavy loads—car or truck tow cables, auto safety belts, etc. Straps come in lengths given above. All complete with two rugged quick-snap hooks, metal buckle and adjuster so you can pull them out to full length or shorten them as needed.

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Basic Cabinetmaking: Joinery



Simple flat miter has multitude of uses in making frames of various types. Saw with accurate miter gauge makes this a simple joint to form; two 45-deg. angles equal 90 deg.



A 45-deg. cut at each end of the stock makes a perfect frame. Great help for accuracy is this clamp that fits on gauge; without clamp use sandpaper on gauge face.

ADD INTEREST AND ADDITIONAL CHALLENGE to your work, as well as adding strength and beauty to any woodworking project by using various types of joints. Many craftsmen shy away from using a variety of joints because they look complicated. Actually, most of the joints required in the work of the average craftsman can be cut on an ordinary table saw. You radial-arm saw owners can make the same joints, modifying the setups shown.

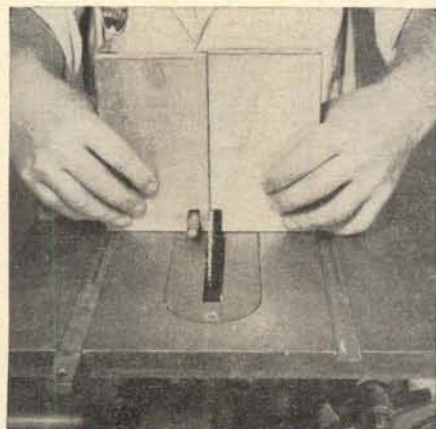
First, keep in mind that the most complicated joint is not always best for a particular job; a simple joint will do as well and take much less time and labor to make.

Usually the name of a joint will indicate where it can be used best, such as box joint, drawer joint, etc. Flat miters are used for picture frames, window and screen frames and the like. Compound miters, of course, are needed for such items as planting boxes made with a number of slanting sides. The wastebaskets described in this issue require the use of compound miters.

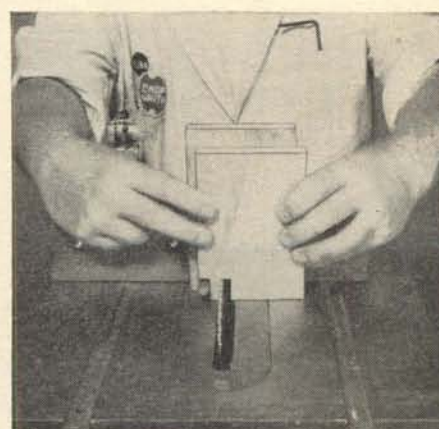
Accuracy is a must for any well-fitting joint. This means that rip fences and miter gauges must be adjusted properly, the saw arbor must be correctly aligned and the saw blade must be sharp. Make all measure-



Box joint is somewhat like dovetail, except that projections and slots are straight-sided rather than angled.



Short length of dowel fitted on board screwed to miter gauge acts as positioning gauge for cutting parts of box joint.

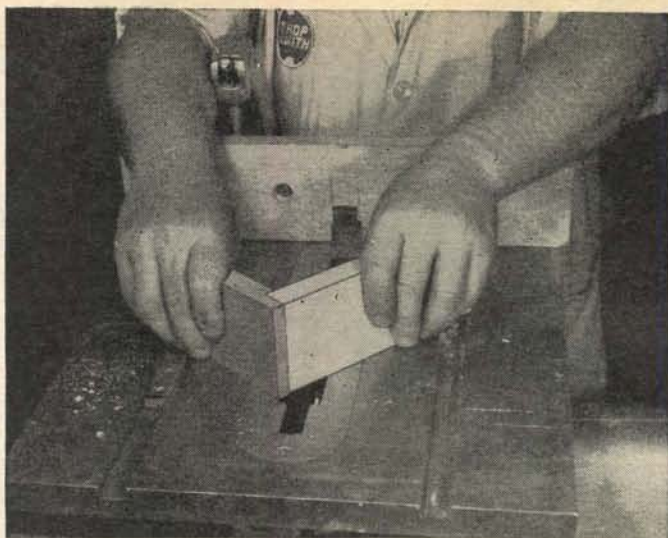


This second step in cutting box joint shows how dowel positions stock to keep grooves and projections identical for fit.

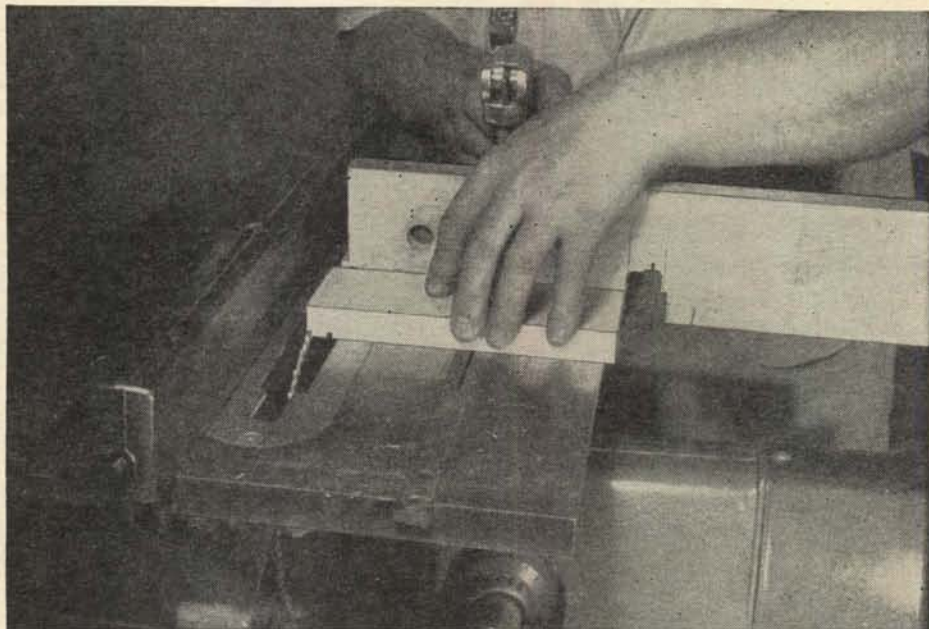
Drawer joint consists simply of rabbet cut in one member one half its thickness, and as wide as the stock of the adjacent side. Joint is fine for neat drawer fronts in cabinets.

ments accurately, using a well-sharpened pencil or scribe to lay out the joints. Make a test fitting of a joint cut from scrap stock when there is any doubt as to its design. When glue is used in a joint—and in most cases will be—allow a slight clearance for the glue. If a joint is absolutely tight, the glue simply will be forced out when the joint is assembled.

Some simple fixtures and jigs are required for making some of the joints shown and described. Short lengths of dowel and blocks from the scrap box should provide enough material to do the job. Once a fixture has been used, and proved to be accurate for the job, mark it



Lock joint is modification of drawer joint, is somewhat stronger. Skill and accuracy are required to make this joint.



First step in making lock joint is to cut two grooves as indicated, one on end, one spaced about $\frac{3}{8}$ in. away; using $\frac{3}{4}$ -in. stock. Width of saw blade is wide enough for grooves. Use stop block on miter gauge, or mark, to assure accurate positioning.



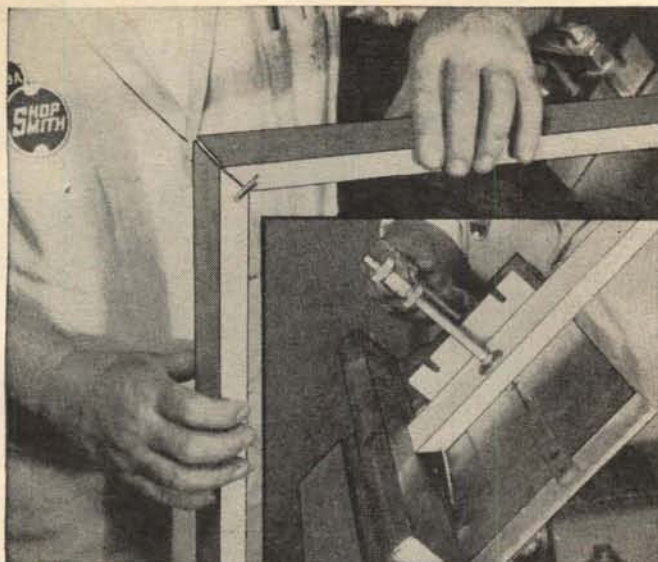
Stock now is turned over, another cut made on end so thin projection results, as can be seen in this photograph.



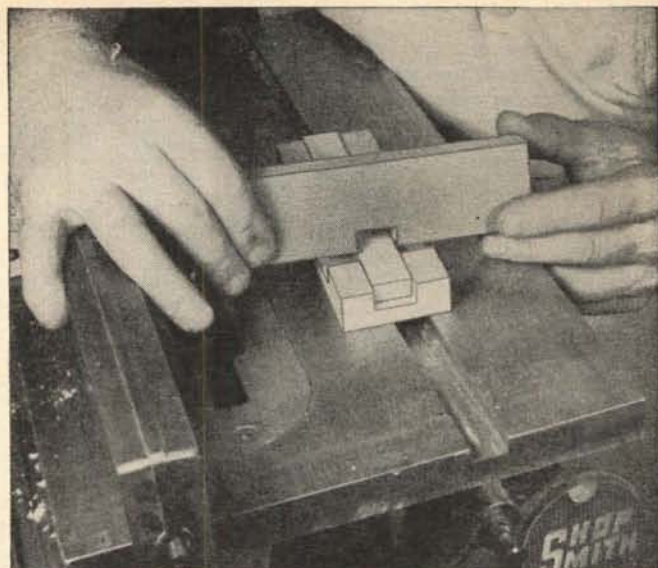
Cut groove in other member, depth equal to width of stock of first member, width equal to space between grooves cut first.



Last step in lock joint is to cut off narrow side of groove, leaving projection to fit in groove and groove for projection.



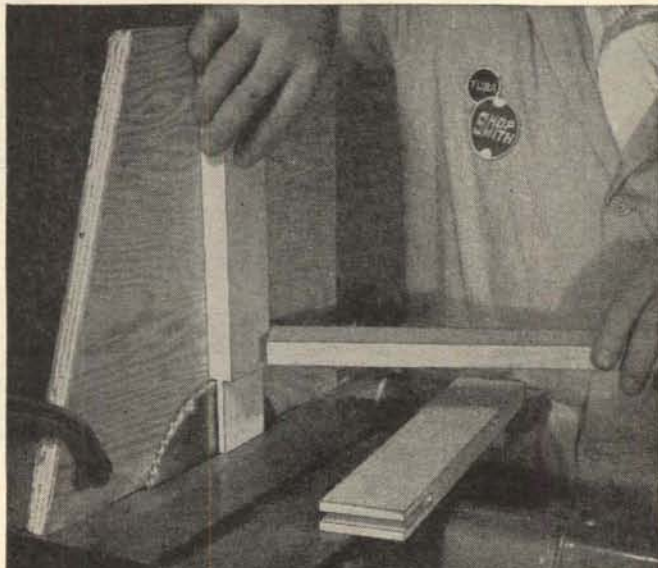
Splined bevel is used for making deep frames, sides of boxes. First step is to cut 45-deg. bevel on each piece. Second step is to saw slot in face of each bevel to accommodate thin spline.



Cogged joint is used where some component must occasionally be removed; pulling strip allows member to be pulled out. Dimensions of joint vary with size of lock strip and stock.



Open mortise and tenon is neat, strong, often used for doors with light framework, such as screen doors. Also sometimes used for window sash. Has resistance to strain in any direction.



Safety setup for cutting tenon consists of scrap of plywood clamped to fence and push stick. Mortise is cut in similar manner, just wide enough to snugly accept width of the tenon.



Slip-feather miter is flat version of splined bevel. Feather is fine as aid to keep surfaces of mitered frame flush, add strength.



Groove for feather is made by passing face of miter over saw blade as shown. Use block to keep stock tight against fence.



When cutting adjacent miter, run stock through held at opposite angle, so meeting faces will have feather grooves aligned.



Compound miters are required for such items as slant-sided planting boxes. Table of angles and bevels is below.

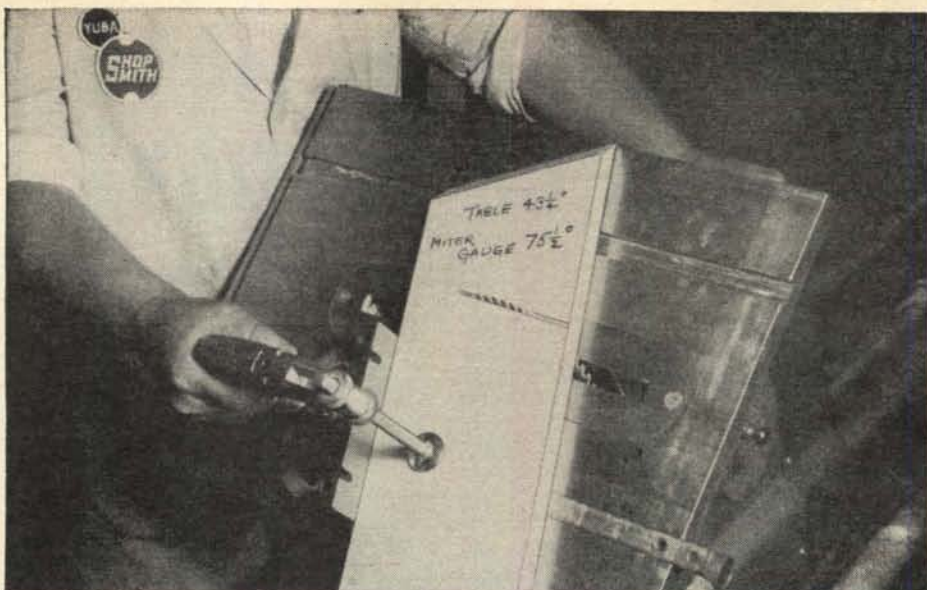
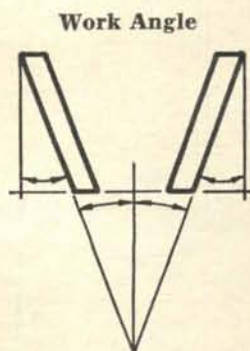


Table below gives angles at which miter gauge and table—or arbor—must be set to produce required compound angles. When tilt-table saw is used, as here, clamp-type miter gauge that holds work firmly, prevents it slipping, is great help in keeping work accurate.

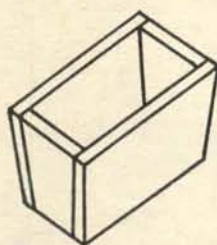
and keep it on a shelf somewhere so it can be used again when you want to make that particular joint. Also, no matter how well a joint is made, green lumber, or stock that has irregular grain, knots and other faults, should not be used. Green lumber will dry and shrink, making a joint loose. Poor grain and other imperfections too often end up in the joint itself and weaken it. Use only clear, straight-grained stock for cabinetmaking and furniture work. And, always, use safety devices on

your saw. A push stick can be made in minutes; it will keep your fingers clear of the whirling saw blade. When a simple setup can be used to keep your hands well clear of the blade, take the few minutes required and make the setup or fixture needed.

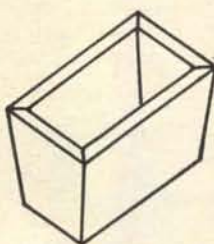
Each of the joints described in this article is shown in step-by-step photos. Examine each photo carefully, check the way each setup is made, then duplicate it in your own shop on your own saw. $\Delta \Delta$



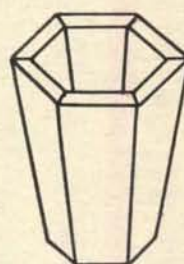
Four Sides, Butt Joint



Four Sides, Miter Joint



Six Sides, Miter Joint

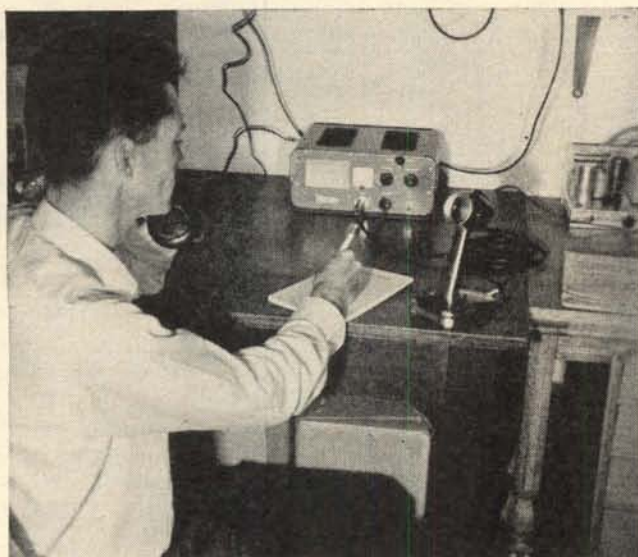


SETTINGS FOR COMPOUND ANGLES IN DEGREES

Work Angle	Tilt Table	Miter Gage	Tilt Table	Miter Gage	Tilt Table	Miter Gage	Tilt Table	Miter Gage
5°	1/2	85	44 3/4	85	29 3/4	87 1/2	22 3/4	88
10°	1 1/2	80 1/4	44 1/4	80 1/4	29 1/2	84 1/2	22	86
15°	3 3/4	75 1/2	43 3/4	75 1/2	29	81 3/4	21 1/2	84
20°	6 1/4	71	42	71	28 3/4	79	21	82
25°	10	67	40	67	27 3/4	76 1/2	20 3/4	80
30°	14 1/2	63 1/2	37 3/4	63 1/2	26	74	19 1/4	78 1/4
35°	19 1/2	60 1/4	35 1/4	60 1/4	24 1/2	71 3/4	18 1/4	76 3/4
40°	24 1/2	57 1/4	32 3/4	57 1/4	22 3/4	69 3/4	17	75
45°	30	54 3/4	30	54 3/4	21	67 3/4	15 3/4	73 3/4
50°	36	52 1/2	27	52 1/2	19	66 1/4	14 1/4	72 1/2
55°	42	50 3/4	24	50 3/4	16 3/4	64 3/4	12 3/4	71 1/4
60°	48	49	21	49	14 1/2	63 1/2	11	70 1/4

EFFICIENT OPERATION OF A CB STATION

CECIL JACKSON (17Q0644)



Telephone should be handy to transceiver, mike should be within easy reach and of type to fit needs of station.

IT HAS BEEN OUR OBSERVATION that there are many practices which do not contribute to efficient CB station operation. We will discuss ways and means of good practice. When the system (transceiver, transmission line and antenna — See Nov.-Dec., 1961), have been properly adjusted, do not tamper with adjustments unless malfunction occurs. It is a mistaken belief that because an "S"-meter reading (signal strength as read by the receiver), is down somewhat in relation to a previous reading that the transmitter is in need of adjustment. Actually, this could be because radio-wave propagation (to be discussed in a future article), will vary from day to day, and even within the same day. Also, the "S"-meter calibration system will undergo changes from time to time, and voltages will vary at both the transmitter and receiver. Continual adjustments will inevitably result in reduced over-all performance and may lead to premature component failure. Also, in the event that any component is replaced, it then becomes necessary to recheck adjustments and sometimes to recalibrate.

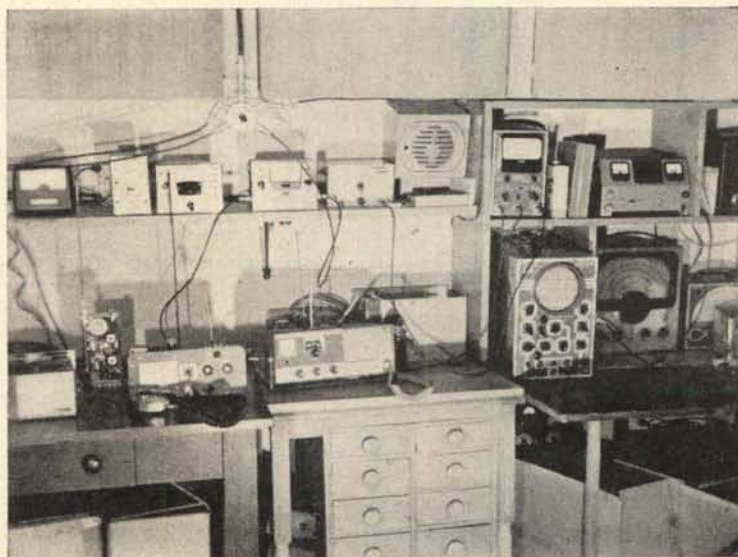
The distances at which reliable communications are made will vary for the same reasons just mentioned. Do not expect your CB equipment to perform exactly the same day after day, for the reasons stated.

On all transceivers, allow ample time for complete tube warm-up before operating the transmitter. (If plate voltage is applied before the cathode is at operating temperature, irreparable damage to the cathode may result). This will assure longer tube life, and more effective first-

call results. On mobile units, premature failure of components can be reduced by turning on the set after you have started the engine. When an engine is cranked, the starter motor knocks the top charge off the battery, which activates the voltage regulator, causing it to throw a full voltage into the system. This high voltage surge into a cold CB set is murder on the components. Always listen on the channel on which you intend to transmit to determine if the channel is in use. (This may require opening the "squell" control to assure that a set with a weak signal is not transmitting). It is not proper, nor courteous, to interrupt another conversation.

Make maximum use of your "on-the-air" time. It is not necessary nor desirable to use your call letters on each transmission if several successive transmissions are part of the same conversation. This saves on-the-air time for the message. The "10" signals are used to get or give more information in a shorter period of time, and if your business warrants, you also may use additional "10" signals peculiar to your station. All of this may condense a five-minute conversation (the maximum permitted under FCC regulations), to three minutes, allowing others to use the channel. Remember, you may be the one waiting for air time.

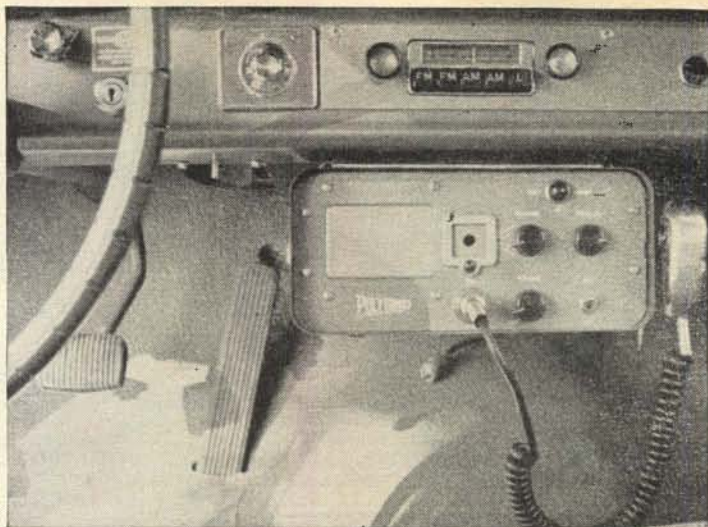
The arrangement of a base station can work to the advantage of the operator if certain considerations are met. How close to the center of operations can the transceiver be located? (This, of course, would be dictated by the type of business or arrangement of the home.) How close to the telephone, if the telephone is vital to the station operation? There are very few instances when a phone is not vital; an emer-



Radio technician needs plenty of equipment to repair transceivers. On top shelf are Seco Crystal Tester, Seco Antenna Tester and Seco Transmitter tester being evaluated.



Microphone types, left to right: carbon mobile, ceramic base, ceramic mobile, crystal base, ceramic deluxe base with press-to-talk bar and locking lever, dynamic mobile and dynamic base.



Under center of instrument panel is usually best location for installation of mobile unit.

gency call (mayday) on the radio could mean a call for the police or fire department and you must grab for the phone. A phone call to the house from someone trying to locate the driver of a mobile unit means a quick step to the mike of the CB transceiver to determine the 10-20 (location) of the mobile so he can return the phone call, or relay a message from phone to transceiver.

How much noise from a receiver can be tolerated? Required volume and squelch-control settings determine the amplitude of noise from the unit. How much background noise will be picked up by the microphone? This will determine the type of mike that should be used; a carbon mike is usually close-speaking, (meaning that it is held quite close to the lips of the person transmitting), and will pick up very little background noise. A dynamic mike usually is highly sensitive and readily picks up background noises. However, where the person at the base station must move around and be several feet away from the mike, the dynamic is ideal, as it will pick up and transmit a voice clearly under such conditions.

In a mobile unit the mounting of the transceiver will be determined by the available space, but the mike should be within easy reach of the operator. The mike, in the case of a mobile unit, should be the close-speaking type, as there is a multitude of unwanted background noise produced in the vicinity of the vehicle from passing traffic and the like. We prefer "crystal-controlled" receiver on the mobile unit—as opposed to tuning to a channel with a dial—to eliminate the possibility of missing a call by having the receiver mistuned, and also the hazard involved when the driver of a moving vehicle must take his eyes off the road to tune a receiver. As a matter of fact, some states even now prohibit the use of a mobile radio while a vehicle is in motion, because of the safety hazards involved.

In making a transmission, state your call letters clearly and distinctly, in order that the called station can identify you easily, speak slowly to eliminate the need for repeating and speak directly into the mike at the distance recommended by the manufacturer. Do not use unnecessary or meaningless words (in the interest of conserving transmission time), and take your transmitter off the air immediately upon completion of your message.

By observing the fundamentals of station operation, the efficiency of operation can be increased, quite often with a substantial saving of cost to the station or business. Components cost money, it takes time to

replace them and your equipment is useless when it is down for repairs. And it is the time-saving and convenience of CB radio that makes it so very valuable. $\Delta\Delta$

TEST REPORT

OUR BENCH TESTS of the Poly-Comm "N" showed that the published specifications regarding sensitivity, selectivity, squelch response and transmitter talk power were exceeded in most cases. Field tests, both mobile and base, were equally satisfactory. We believe that those interested in exceptional CB communications would do well to investigate the Poly-Comm "N."

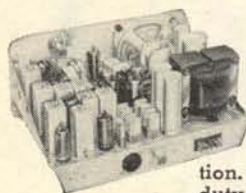


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KARL J. BROUNEUS

INEXPENSIVE TO MAKE, this easel will
make a fine gift for a budding artist,
or anyone who has taken up the
hobby of painting. Lengths of 1 x 2
stock (3/4 x 1 3/4 in. approx. actual di-
mension), are used for the legs of the
easel. Purchase straight-grained
clear pine, and hand-pick the ma-
terial to be sure the lengths are
straight. The two front legs of the
easel have an angle cut near the top
so they can be joined at an angle as
indicated. Use corrugated fasteners,
or a fastener of the type shown. As
an alternate method, drill through

the upper ends of the legs and use
two or three short lengths of dowel
glued in place.

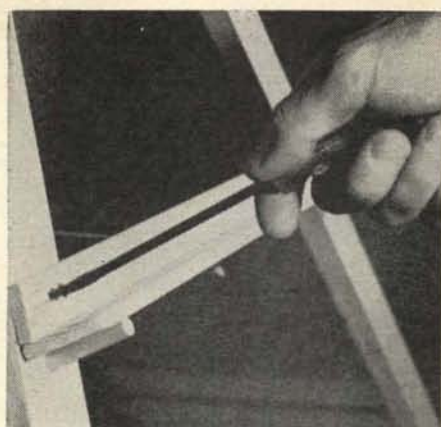
The back leg of the easel is tapered
on both sides, mostly for appearance.
A ledge for supporting a canvas is
fitted on the two front legs. This
ledge is reinforced with two dowels
under it, then is screwed directly to
the legs with flathead wood screws.
A somewhat better method is to
leave the dowels and ledge loose. A
series of holes then is drilled in the
two front legs. This permits the ledge
to be positioned at a number of dif-



After two front legs of easel have been cut, proper angles made, join them with cor-
rugated fasteners or devices such as shown. This joint must be strong and rigid.



Fasten front-leg assembly to back leg with T-hinge. Use long part of hinge on single leg, short part on two legs.

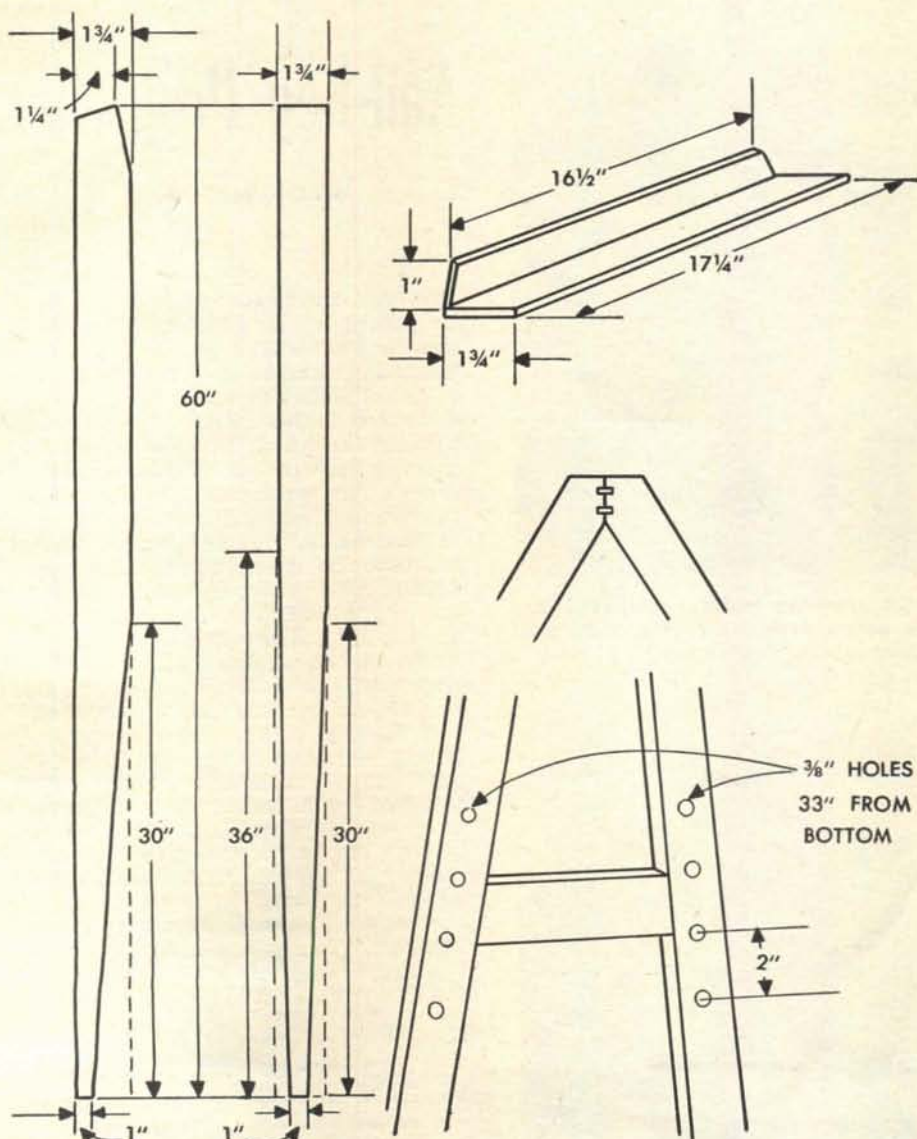


Ledge that supports picture can be screwed solidly to legs, or preferably, dowels and ledge are made adjustable.

ferent heights. The artist thus can sit or stand, and people of various heights also can adjust the easel to suit themselves.

A cord or light chain is hung on a screweye on the back leg. An open

hook or eye is fitted on the ledge to receive the other end of the chain. The angle between the front and back legs is determined by adjusting the length of the chain. For appearance, use a brass decorative chain. $\triangle \triangle$



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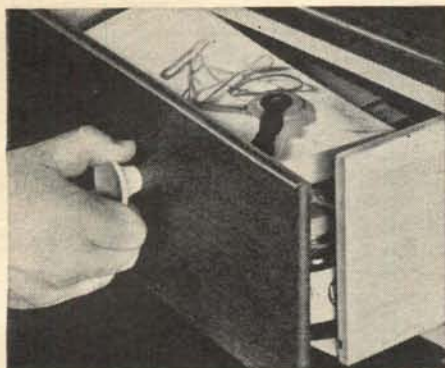


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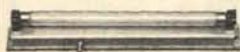
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Magazine rack and sewing box are representative of the kinds of projects that can be made from salvaged nail kegs.



Before removing metal bands sand keg with progressively finer grits, then steel wool to produce smooth finish.



Nail-Keg Projects

AVON McCURDY

LOW-COST MATERIAL for projects can be picked up at your local lumberyard in the form of empty nail kegs. These kegs can be used for a number of items; just two are shown and described in this article. First step is to sand the wood. Do this before removing the wire hoops used on some types. The wood of these kegs is fairly rough and will require the use of progressively finer grits of paper to produce the required smooth finish. After thorough sanding, cut the keg in half. This can be done by sawing around the keg with a hacksaw, or by using a sharp, fine-toothed handsaw. Use care in this operation to prevent the keg from collapsing.

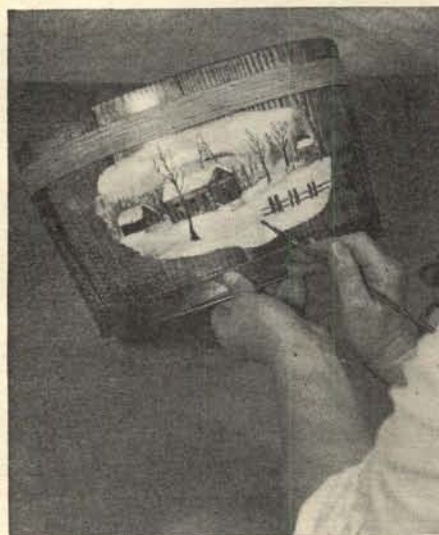
If the keg is held with black metal bands, they can be left in place and painted, wire should be replaced with wood or metal bands. Wooden bands are best as they provide "atmosphere" or "authenticity". These strips are ripped from a straight-grained hardwood, such as oak, then steamed or soaked to permit easy bending. The strips are wrapped

Keg can be cut in half by using a hacksaw and cutting around it, or sharp, fine-tooth handsaw can be used.

around the keg, then fastened with roundhead wood screws. A few nuts and bolts fitted in holes drilled through the strips and the keg will assure the strips staying in place.

Use a maple oil stain on the kegs, applying it evenly and avoiding streaks. The inside of each keg also can be stained, or painted a vivid, contrasting color of enamel. In the case of an item such as the sewing box, make the tray and the lid from plywood, cutting a disk of the proper size. The edge of the tray, and the bail, are strips of hardwood.

Use antique-design hardware, in keeping with the "Early-American" appearance of the nail-keg projects. For a final touch, paint a simple scene in oils on the lid and side of the finished project. The picture can be copied from a magazine or a greeting card. If you lack the time or artistic ability, apply a decalcomania instead of the painting. Apply a thin coat of clear shellac or varnish over the completed project. $\Delta \Delta$



Simple oil painting copied from magazine or post card dresses up item. Decalcomania can be applied instead.



Lid and tray for sewing box are disks cut from plywood. Sides of trays, hoops and bail are strips of oak steamed and bent.

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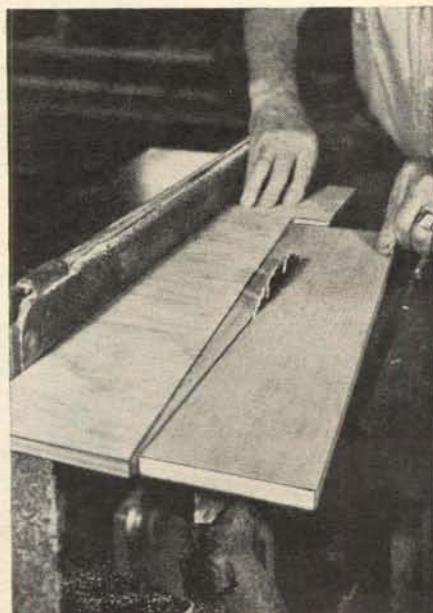
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Three Wastebaskets

DICK HUTCHINSON



Make a jig as shown, with correct taper,
for making basket staves, or use an ad-
justable taper jig to keep angles alike.

SIMPLE TO MAKE, extremely attractive,
and with a multitude of uses, these
three wastebaskets make ideal gifts
or group shop projects.

Least complicated of the three
projects is the octagon-shape,
straight-sided style. The original was
cut from 1/4-in. ash-faced plywood,
because of the beautiful grain of this
wood. First, lay out the octagon for
the bottom on 3/8-in. plywood, as
shown in the drawing, then cut it out.
The edges of each of the 8 staves
are cut at an angle of 60 deg. Drill
the holes for the lacing, then sand
and finish the staves before as-
sembling the basket. If the wood is
to be left natural, simply apply two
coats of white shellac, rubbing down
each coat lightly with 4/0 steel wool.
Wax the wood, then polish. For a
color, apply a coat of semi-gloss
enamel, then wipe off immediately.
No other finish is necessary. Attach
the lower edges of the staves to the
bottom with roundhead brass screws,
then lace the staves together with
split-leather thongs or silk cord.

The smaller basket with tapered
sides has the edges of the bottom

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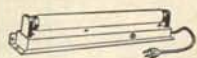
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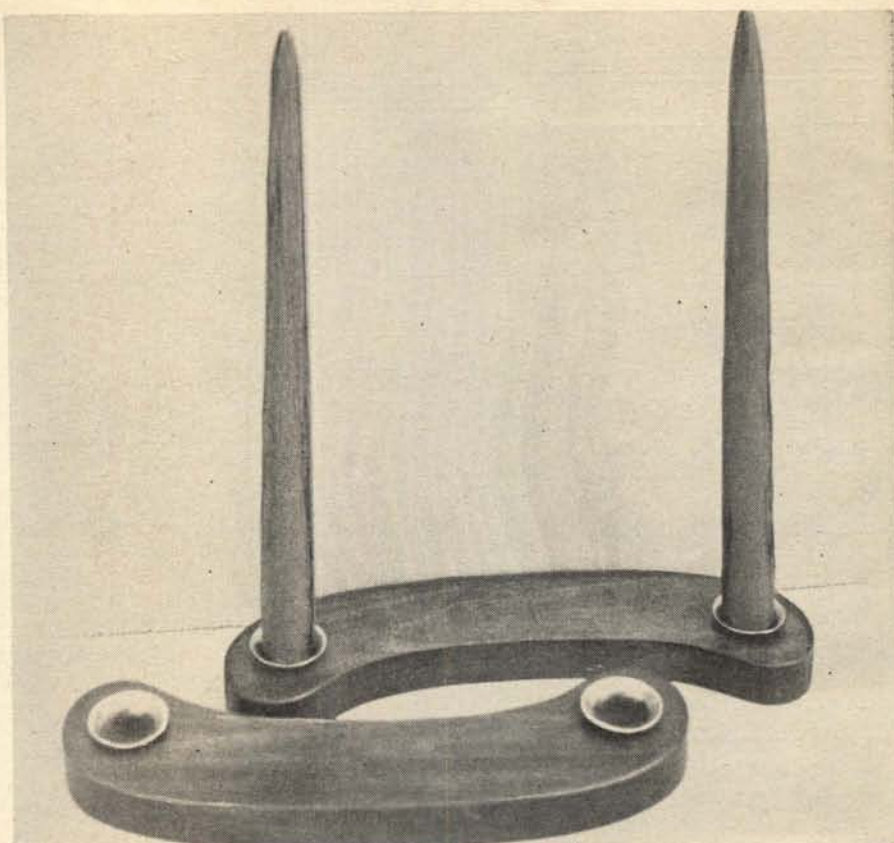
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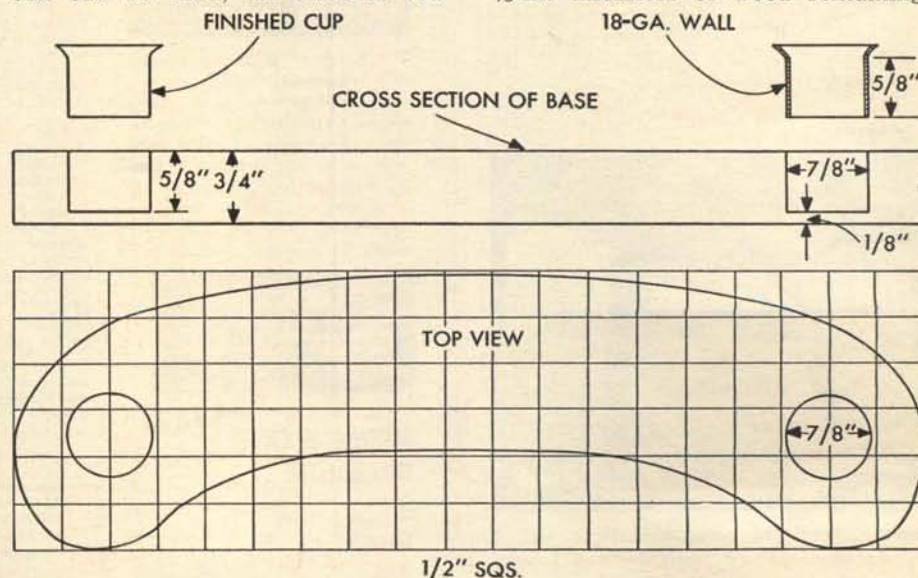
Extremely attractive, but simple to make, these candle holders are cut from scraps of hardwood, drilled to accept metal cups.

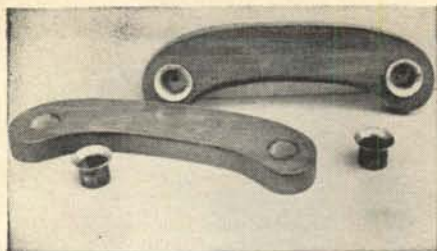
Candle Holders

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THESE ATTRACTIVE candle holders are extremely effective for a table setting, around a centerpiece or in any number of places. They are simple to make, and can be cut from 3 x 10-in. scraps of any kind of 1-in. hardwood. While walnut, mahogany or oak can be used, we selected red

gumwood, as this close-grained hardwood needs no filler. The two holders are jigsawed to shape, then two blind holes are drilled in each, as indicated. The holes are 7/8 in. dia. and 5/8 in. deep. The 1-in. stock actually is about 3/4 in. thick, so there is a 1/8-in. thickness of wood remaining





Formed, or purchased cups, are fitted in blind holes drilled in the wood shapes. Any attractive hardwood can be used.

beneath the blind holes. Metal cups for the candle holders can be purchased from craft-supply houses, or you can make your own from tubing. Use a ball-peen hammer to flare the tubing as shown, then cut the tubing to length. The flare of the cups should project above the wood of the holders, as indicated in the photos. Brass, copper or aluminum tubing can be used for the cups. To produce a black-walnut appearance on most hardwoods, apply a coat of semi-gloss chocolate-brown oil paint, then wipe dry with a soft cloth. Before applying the paint, of course, sand the wood to provide a glass-smooth surface. Follow the paint application, after it is thoroughly dry, with two successive coats of white shellac, rubbing down gently with 4/0 steel wool after each coat. Finally, apply paste wax and polish. Δ Δ



Metal cups for the holder can be purchased from craft-supply houses, or they can be shaped from metal tubing, flanged as shown.

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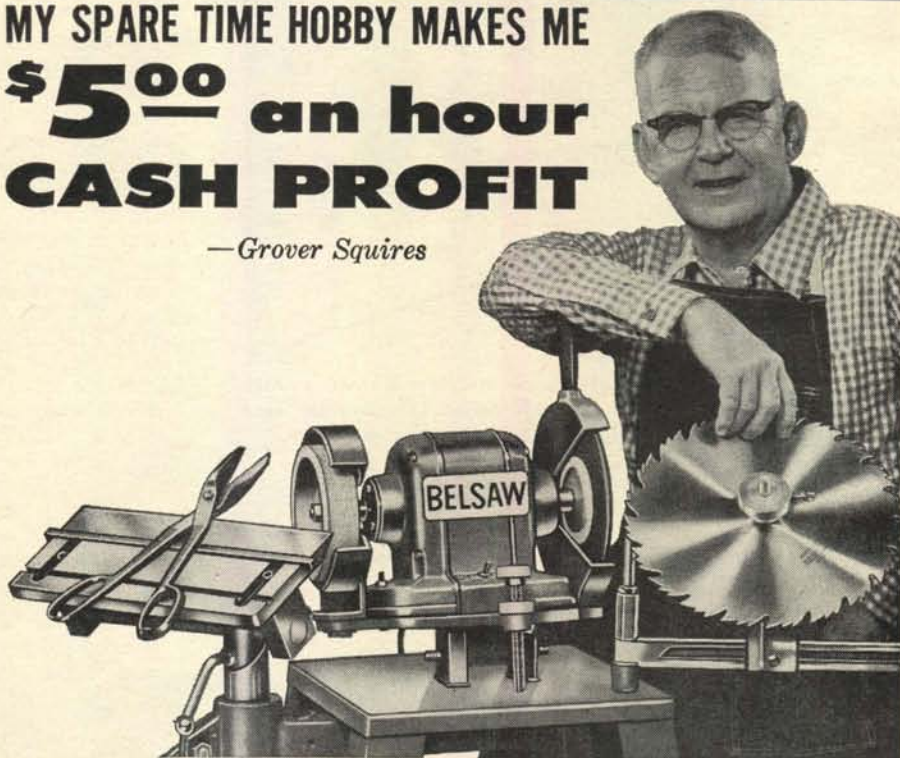
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WORKBENCH Magazine published bimonthly at Kansas City, Mo., for January-February, 1962. 1. The names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, John E. Tillotson II, 543 Westport Rd., Kansas City 11, Mo. Editor, Jay W. Hedden, 543 Westport Rd., Kansas City 11, Mo. Managing editor, none. Business manager, none.

2. The owner is: Modern Handcraft, Inc., 543 Westport Rd., Kansas City 11, Mo.; John E. Tillotson, II, 543 Westport Rd., Kansas City 11, Mo.; John E. Tillotson, 543 Westport Rd., Kansas City 11, Mo.; C. S. Tillotson, 543 Westport Rd., Kansas City 11, Mo.; Mary Ida Sullivan, 543 Westport Rd., Kansas City 11, Mo.; Wilburn L. Mead, 543 Westport Rd., Kansas City 11, Mo.; Sarah Peery, 543 Westport Rd., Kansas City 11, Mo.; Flower & Garden Foundation, Box 357, Rosedale Station, Kansas City 3, Kans.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue.) . . . 305,000.

John E. Tillotson II

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Book Reviews

THE OWNER-BUILT HOME

by Ken Kern, Oakhurst, Calif.

In 4 volumes; Vol. I is \$2,

Vols. II, III and IV \$1 each.

This interesting set of books is written expressly for those who wish to build their own home, whether personally or with the aid of a contractor. Discussed are basics such as climatology, position of a house on a lot and ventilation. Besides 4 volumes, supplements are sent out also, and are free.

Books are highly recommended for those seriously considering construction of their own "dream" home.

HOME MECHANICS

By Carl Schaefer

Bruce Publishing Co.

Milwaukee 1, Wisconsin, \$2.96.

Written for every homeowner, this book will be appreciated especially by the man buying his first house. Shown and described are such tasks as changing a faucet washer, making minor electrical repairs and freeing sticking windows.

GUN DIGEST

Edited by John T. Amber

Gun Digest Association

4540 West Madison St.

Chicago 24, Illinois, \$3.95.

As always, the 1962—16th annual edition of Gun Digest is all new. Up-to-the-minute prices, pictures and specifications on virtually every gun available, plus ballistic tables and other details. The Spencer Rifle is one feature article, another is Fast Draw or Quick Draw. A must for every gun enthusiast.

LEARN TO DRAW FROM MASTER ARTISTS

Arco Publishing Co., 480 Lexington Ave.,

New York 17, N. Y. \$2.50

Technical adviser on this book, Frank Reilly, artist, lecturer and teacher at the famous Art Students League in New York City, describes the volume as "the chance to 'study under' the old masters, once the privilege of a selected few," and we would agree. Included in the book are copies of sketches made by such masters as Degas, DeVinci and Lautrec. Perspective, composition, skeletal and muscle structure of man and animals are shown and described. If you are an art student, amateur artist or simply want a better understanding of great art, this book should be in your library.

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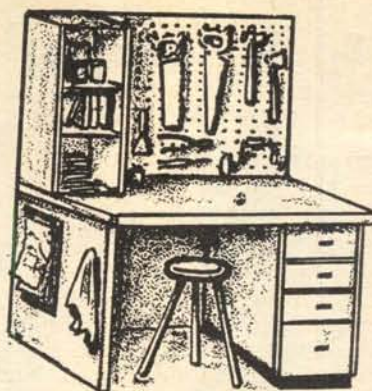
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WORKBENCH RESEARCH DEPARTMENT

EACH ISSUE IN THIS COLUMN WE WILL CHOOSE QUESTIONS ON HOME AND SHOP SUBJECTS FROM LETTERS SENT TO US. ONLY THOSE QUESTIONS WHICH HAVE WIDE APPEAL WILL BE ANSWERED HERE. QUESTIONS ON SPECIALIZED SUBJECTS WILL BE ANSWERED BY INDIVIDUAL LETTER FROM THE RESEARCH EDITOR'S DESK.

Dear Research Department:

The floors in the old home we recently purchased are all oak, generally speaking, in good shape except for a sprinkling of stains, evidently from a variety of substances. The floors are not bad enough to consider a complete refinishing, unless there is no practical way to remove or greatly tone down these stains. Do you have any suggestions? Mrs. A.R.D., New Jersey.



Dear Mrs. A. R. D.:

You leave yourself open for a sort of all-inclusive answer, by not mentioning what caused the stains. But perhaps they were made over a period of time by another family, making it very difficult to determine. This is a problem for you, though, for in order to effectively treat a stain you will have to guess, at least, as to what caused it. Best we can do for you is to enumerate some of the common stains and their remedies, in the hope your stains will fall into one of these categories.

Standing water stains: rub with No. 00 steel wool, re-wax. Further treatment may require use of fine sandpaper followed by thorough cleaning with steel wool dipped in mineral spirits or floor cleaner. When dry apply a matching finish, followed by wax.

Cigarette burns: using soap and water, rub with steel wool.

Ink spots, animal and diaper stains: rub with steel wool dipped in mineral spirits or floor cleaner. Include surrounding area. If spot persists, use fine sandpaper and feather out beyond stain several inches. Re-wax and polish spot. It may be

necessary to re-do using coarser sandpaper, feathering out from spot, then the fine sandpaper, finally steel wool. Refinish as with water stains.

Alcohol spots: using a cloth treated with ammonia or boiled linseed oil, rub vigorously.

Grease or oil: place a layer of cotton on stain. Saturate it with hydrogen peroxide. Lay a second layer of cotton on this, saturated with ammonia. Repeat this procedure until stain disappears.

Heel marks, caster marks: dip fine steel wool in floor cleaner, rub vigorously, wax as necessary.

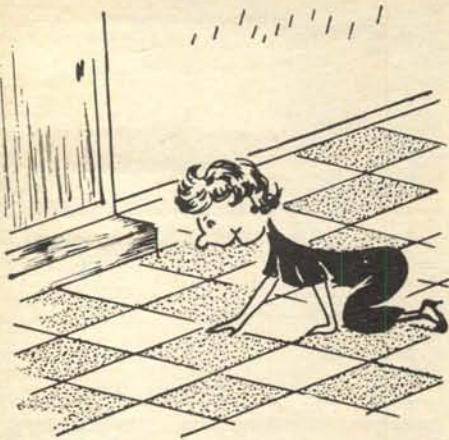
Dear Research Department:

We recently purchased a home and one of its features for us is an unfinished family room about 22 feet square. We plan to panel the walls with knotty pine and the ceiling is already in—nothing to do but to sand the taped joints and paint. My query concerns the floor. The room is a step down from the rest of the house and is called "on grade" or level with the outside and has a concrete floor. We are not particularly happy about using asphalt tile, but several friends have told us that this is about all that can be satisfactorily used in such an on-grade situation. Can other materials be used for the floor? My wife would like the warmth of wood, but I guess that is out. By the way, the cement is smooth, no cracks, and I suppose could be painted but we sure don't want this. Mr. A.G., Oklahoma.

Dear Mr. A. G.:

It was not many years ago when the advice of your friends was just about the size of it so far as a floor covering for an on-grade, or below-grade floor was concerned. But today there are several floor coverings designed for this situation. They do an excellent job, are reasonably priced and provide a wide choice of patterns and colors.

There are four general types and we will list them from the least costly on up:



First is still asphalt. And though you may be against this, don't pass it by without a look, for there are some good looking asphalt-tile designs and colors. Depending upon color—the lighter the more expensive—this should average about \$1.50 per square yard for materials only.

Next is vinyl asbestos. It, too, is recommended for this application and should cost right around \$2.00 per square yard. This is the material, you may recall, that can be cut and trimmed with scissors.

Next comes a material you perhaps did not expect—wood parquet flooring. It is available in two sizes: 9" x 9" and 12" x 12". The 9" squares are one-half inch thick, the 12" size are 5/16" thick. Both are composed of three plies laminated together and prefinished. Finish is a baked plastic and should have excellent wearing qualities. It can be obtained in a light or a dark shade; the wood is oak. To apply, floor must be clean and smooth and a special mastic is used, similar to that used with asphalt tiles. Average cost is about \$3.50 per square yard. More information can be obtained from the Wood Mosaic Corp., Flooring Division, Louisville 9, Ky.

Another special material now also tailored for on-grade or below-grade concrete-floor applications is Armstrong's "Corlon." This is in roll form, of various widths, and with its special backing, also is completely suitable for your use. Here, too, there are many interesting patterns to pick from which will provide a colorful floor. This material might prove to be somewhat more difficult to apply, but undoubtedly could be done by a reasonably "handy" handyman. Price is about \$7.00 per square yard. Colors and available designs in asphalt and vinyl asbestos tile can be examined at most floor-covering stores, as is Armstrong's "Corlon," but we mentioned the address of the wood-tile manufacturer because they are one of the few who produce a wood tile designed for this application.

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For drawers up to 22" deep. Easy to install—In Old and New Drawers, 1/8" narrower than opening with 1" between each drawer. Will support up to 50 lbs. High quality materials—low cost to you. Can be cut to any length. Only 98c per set. BARGAIN One Dozen sets only \$9.89. Wt. 1 lb. per set. Satisfaction guaranteed. Prices F.O.B. Chicago. Send for catalog of lamp parts, veneers, lazy Susan bearings, rocker springs, Swiss musical movements, etc. Catalog 10c. FREE with order. A 50% deposit is required on all C.O.D. orders.

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Attaching legs simplified by using Heavy Gauge Steel Mounting Plates with nut inserted. Easily fastened to table with screws. Tap hanger bolt into leg and connect. In sets of 4 with hanger bolts and screws. Wt. 1 lb. per set.

No. 500 straight mount 49c per set. \$4.89 dz. sets
No. 512 12 Degree angle 49c per set. \$4.89 dz. sets

Solid Brass tapered ferrules with brushed finish, for that Professional Look. In sets of 4. Wt. 6 ozs. per set.

No. 72 7/8"x1 1/2"—45c per set. \$4.49 dz. sets
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1/28" Veneers available for Cabinet Work. Shipped in 36" lengths unless longer lengths are required. Minimum order \$1. Available in following species (prices per sq. ft.)—Cherry—14c, Mahogany (stripped African)—12c, Rosewood (Brazil or East India)—21c, Walnut (plain sliced)—12c, Walnut (Straight Stripe)—16c. Many other species available, all listed in our catalog.

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Dear Mr. J. O'D.:

We answered your letter rather than a number of others because it is so general, and in giving you help to solve your problem, we can answer others, too.

There is one answer to all of these letters: the furnace filter is probably dirty and should be replaced! Here is what happens. You did, or you did not, start the season with a new filter. If you didn't, the problem is more acute and the remedy is more costly, but it's all the same problem. Anyway, now, two months or so into the heating season, the furnace seems to be on more of the time, more fuel is consumed, seems there is less heat. Yet there may have been a respite in the weather, sort of an Indian summer, and there really should not be such fuel consumption. Why? Dirty filter.

Dust, unobserved, perhaps, but dust in the house from summer, starts circulating when the furnace is turned on in the fall, eventually lodges in the filter. Then the fan motor must work more of the time circulating heat in order to fight through the clogged filter. Then the furnace itself is on more time producing heat. The only safety device left operative on the furnace is the bonnet thermometer since the room thermostat may still call for heat. This greatly increased use of the fan motor finally ends by burning out the motor, and the costly repairs start. As to when to change the filter, best advice is to inspect it regularly, maybe twice a month.

Some homes are equipped with a furnace installed in a horizontal position either in a crawl space under the floor or in the attic. Often, due to the trouble involved in even getting near the furnace the filter is never changed! Filters are inexpensive insurance.



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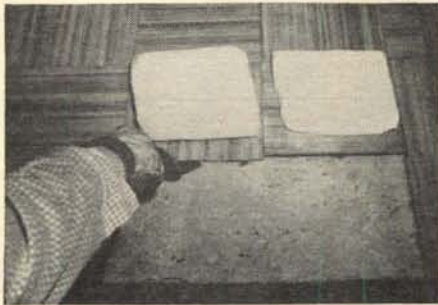
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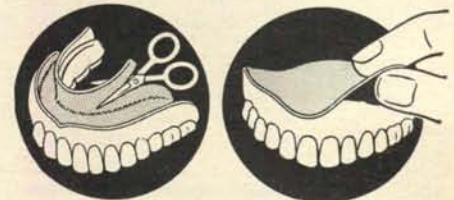
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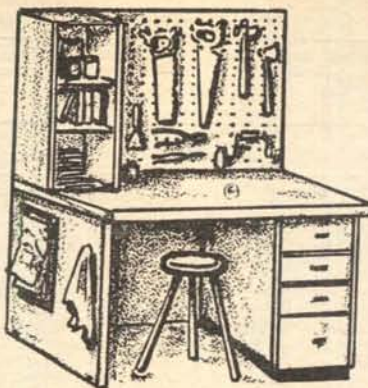
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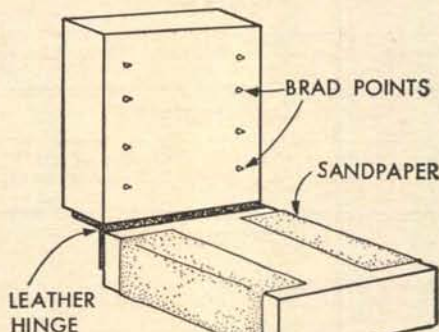
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COD on arrival or send \$6.99 for postpaid delivery. Sent complete—Ready to Listen—Nothing else to buy—ever. Not sold in stores—Available only from: MIDWAY COMPANY, Dept. PW-2, KEARNEY, NEBR.



WORKBENCH SHOP TIPS

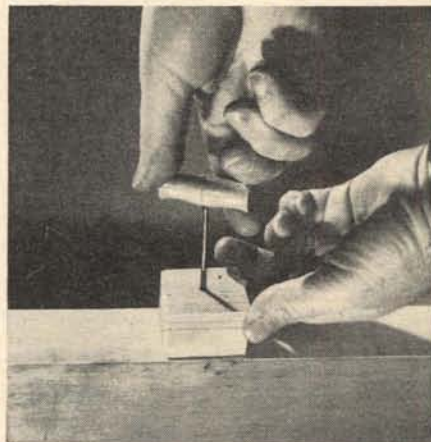
Hinged Sandpaper Block



Two blocks of wood from the scrap box and a few minutes' time are all that are required to make this handy sandpaper block. Hinge the blocks together with leather and drive brads through the upper block as indicated, so they project about 1/8 in. to hold the paper securely.

Daniel Bousha, Jackson, Mich.

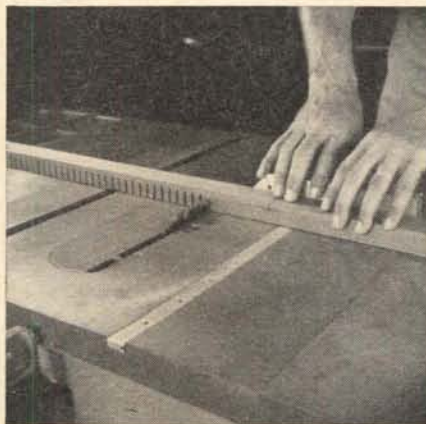
To Make Straight Gimlet Holes



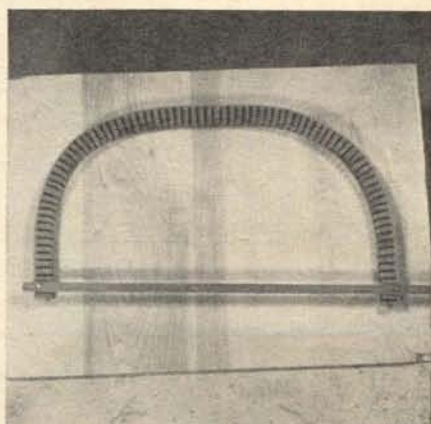
A gimlet is a good tool for making occasional easy holes in wood—but not so good when the holes turn out to be crooked. Bore straight holes by first drilling a hole through a square block of wood and using the block as a guide when using the gimlet.

Ken Murray, Colon, Mich.

Bending Wood



Next time you need to bend a board, try this "kerfing" method. Cut a series of uniformly-spaced grooves as indicated, then wet the uncut surface and bend to the required shape. The cuts should never be less than 3/4 the thickness of the



stock. Spacing depends on how extreme the bend will be; the greater the bend, the more cuts needed. If the curved edge is visible, hide the cuts by filling them with wood putty after the bend is made.

R. J. DeCristoforo, Los Altos, Calif.

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12" COMB. DRILL-PRESS LATHE DISC SANDER-GRINDER



Metal Parts Kit (less pipetor bed). \$29.95

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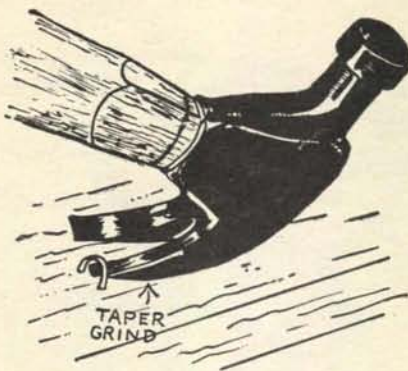


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Pulling staples with an ordinary claw hammer is extremely difficult, especially if the staple is deep-seated in the work. To overcome this problem, grind one of the hammer claws thin and tapered like the blade of a screwdriver. The altered claw will fit through the staple's eye permitting it to be easily lifted out without marring the work surface appreciably.

John A. Comstock, Wellsboro, Pa.

Easy Case-Hardening

Miniature chisels and carving tools can be made from ordinary soft-wire nails if they are case-hardened. Get a small bottle of potassium ferricyanide from any photo-supply shop. This material is used to bleach photo prints. Heat the piece you wish to case-harden to a dull red and dip it into the cyanide powder. The powder will cling to the metal. Reheat the item to a bright red, then dip it in cold water. If you want a thicker coating of case-hardening, repeat the process. Shape, grind and sharpen any tool to be hardened before it is treated. The case-hardening is quite thin and is readily honed or ground away.

Coke Kimbrough, Prairie Village, Kans.

Saucer Mortar Box



Ideal for mixing up small batches of concrete or mortar are the plastic "flying saucers" on which children play in the snow. The smooth surface of the plastic is cleaned easily of the left-over mortar or concrete. Arthur Tanner, Poughkeepsie, N. Y.

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Paint an arrow or dot on the rim of a spray can in front of the nozzle. A quick glance will tell which direction is away from you. And, keep the nozzle always turned to align with the arrow.

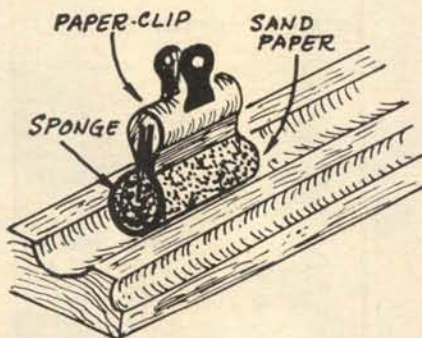
R. J. DeCristoforo, Los Altos, Calif.

Shellac-Stain Compound

Two wood-finishing operations, staining and shellacking can be combined to save time. To do this, mix boiling water, 1 qt., with the required amount of stain powder, then add bicarbonate of soda, 1 oz. To this mixture add 4-lb.-cut shellac, 2 oz. Let the mixture cool, then spray or brush in the usual manner. In storage this mixture will keep as well as the liquid stain.

M. Robert Beasley, Jackson, Mich.

Handy Concave Molding Sander



Here's an easily made sander that is ideal for sanding the concave surface of molding. The sander consists of a piece of sponge and sandpaper clamped in a large clamp-type paper clip. The sponge backing behind the sandpaper provides just enough "give" to allow the sandpaper to follow the curvature of the work nicely. John A. Comstock, Wellsboro, Pa.



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Paint Removers

Paint removing can be simple if you select the correct type of remover and use the proper tools. In addition to your chosen remover, you will need some coarse steel wool pads, a putty knife and an old or an inexpensive paintbrush.

There are four principal types of paint removers: the liquid-benzol types, the liquid or thick non-flammable types, the thick "water wash-away" types and the non-benzol semi-paste types.

Type one, the liquid-benzol, is highly flammable and is designed primarily for use on flat surfaces that have only two or three thin coats of paint, shellac or varnish. When using this type, plenty of ventilation is required and of course, keep the work away from sparks or flames.

The liquid or thick non-flammable removers are your best choice if you are compelled to use a strictly non-flammable type. Most of them rapidly dissolve top coats of finishes, but they do not have long sustaining power to cut deeply. These, too, require adequate ventilation and remember that they are toxic.

The third type, the thick "water wash-away" or "rinse-away" type in most cases works excellently. It is the highest-priced remover, yet the initial cost may be partly offset through less labor and the fact you don't need steel wool pads and scrapers. After this paint remover has thoroughly softened the old finish, you just "wash away" the old sludge with a wet cloth or sponge. If

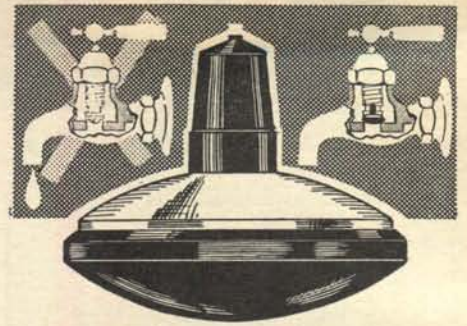
some particles remain in carved areas, they can be cleaned out with a wet toothbrush. This type is non-flammable, but you will still need adequate ventilation.

Lastly, there is the non-benzol semi-paste type, which has the advantages of low cost and slow rate of evaporation. Its penetration is very deep. If a thick coat of this remover is allowed enough cutting time, you will find no scraping is necessary. It is not explosively flammable like the benzol types, just use common sense precautions.

Select the remover which you consider to be the best for your particular job requirements. "Flow" the chosen remover on your surface with the old paintbrush. Do not brush on—rebrushing breaks the protective film which is formed to retard evaporation. When you have flowed on the remover and covered the entire surface evenly, sit back and relax. Allow the remover to penetrate as long as the instructions on the label recommend.

Test-scrape a small area with your putty knife. If the test scraping shows that the remover has penetrated to the original surface, then remove the bulk of the remaining sludge with the knife.

Next go to work with your pads or rough cloth, such as burlap. If you use two pads together you may wipe the sludge up faster. As the pads fill up, replace them with clean ones. Finally, clean the surface thoroughly with steel wool. Let the surface dry completely, then sand lightly with fine sandpaper. When you have achieved a good base, your surface is ready for refinishing. Δ



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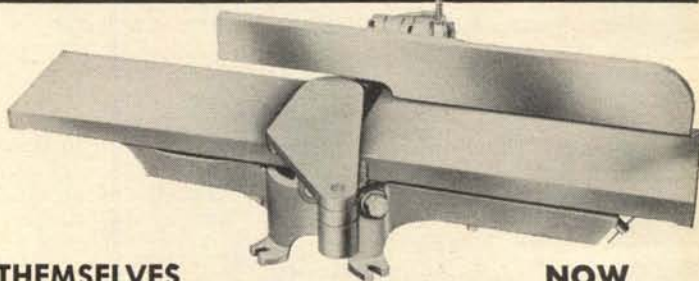
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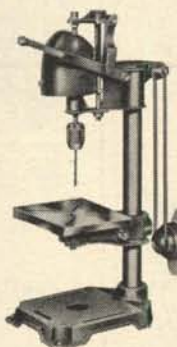
100% precision ground cast iron and steel. Wt. 18 lbs. Exp. Coll.

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DRILLS TO CENTER OF 10" CIRCLE—Rugged, dependable . . . all cast iron and steel. Table to 1/2" handtight chuck: max. 13 1/2". Spindle has combination ball and bronze bearings. Adjustable stop for repetitive drilling. Precision ground cast iron table. Table assembly fully adjustable on column. **UNCONDITIONAL 10 YEAR GUARANTEE.**

\$1995

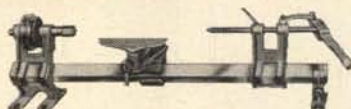
Less Belt
Wt. 32 lbs.
Exp. Coll.



**6" SWING
3-FT. LATHE**

\$985

DOES THE WORK OF \$40 UNITS—This sturdy all cast iron power tool will turn wood or plastics with the precision and speed of machines selling for 4 times as much. Has tubular steel bed, ball thrust cup center, spur center. T-Rest assembly, lever action tail stock. 2 speed pulley. Fits any motor. Perfect for the home or professional workshop, garage or farm. **UNCONDITIONAL 10 YEAR GUARANTEE.**



Complete as shown
Wt. 16 lbs. Exp. Coll.

**HIGH SPEED
TILT ARBOR
BENCH
SABRE SAW**



TAKES THE PLACE OF \$100. BAND SAW—Zips through thick stock effortlessly. Makes outside and inside cuts a breeze. Cuts circles, curves, any angle 0°-45°. Ideal for intricate jobs as well as ripping and crosscutting. Multipurpose saw almost a complete workshop in itself! Free-cutting blade eliminates pull up of work piece. This cutting action, unlike conventional portable sabre saws, reduces friction, blade stays cool, breakage and dulling are minimized. Even the most inexperienced do-it-yourselfer can turn out professional work the very first time. Takes any standard 1/4 h.p. motor or larger.

\$1995

**UNCONDITIONAL
Exp. Coll. 10-YR. GUARANTEE!**

MAIL COUPON TODAY!

American Machine & Tool Co., Dept. W-12, Royersford, Pa.
Please send me the units checked. Payment in full enclosed \$..... or \$3 deposit each item enclosed, balance C.O.D. I must be fully satisfied or will return unit within 30 days for full refund. No questions asked.

☐ 8" Saw \$9.95 ☐ 8" Saw & Rip Fence \$13.45 ☐ Lathe \$9.85
☐ Sabre Saw \$19.95 ☐ Jointer-Planer \$19.95 ☐ Drill Press \$19.95

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ADDRESS.....

CITY.....ZONE.....STATE.....

(please print)

30 DAY MONEY BACK GUARANTEE
You must be satisfied or money refunded, no questions asked.

AMERICAN MACHINE & TOOL COMPANY
Dept. W-12, Royersford, Pa.



MAKE YOUR OWN DECORATIVE NATURE TILES WITH COLORFUL LEAVES, FLOWERS, BUTTERFLIES PERMANENTLY PRESERVED IN CASTOGLAS

Pours Like Honey — Sets Like Glass!

The pansy shown in this photograph was embedded in crystal-clear Castolite in 1946. It is as lovely now as it was on the day we picked it in our garden. Brilliantly colored fall leaves which we embedded in Castolite in 1948 also retained their true color and form through all these years.

NOW you can do the same with Castoglas on wood, hardboard, metal or between layers of glass mat. The greatly simplified method enables everybody to do it, including children in the elementary grades. Here's the way it works:



Mix a small amount of Castoglas with Hardener and pour a thin layer on the wood. Place a leaf (or any other interesting object) on this wet surface. It will harden in 30 minutes at room temperature. A covering coat of Castoglas completes the process. There you have it. A hundred years from now, this leaf will be as new as . . . well, maybe you don't care. But you get the idea.

What can you do with them? Use them for wall decorations, table tiles, coasters. Or make them into trays, a table top or kitchen counter — Castoglas is waterproof and heat- and acid-resistant. Build a lamp base, a set of book ends, or tile a kitchen wall or den with them. There's no end to the truly distinctive accessories you can create.

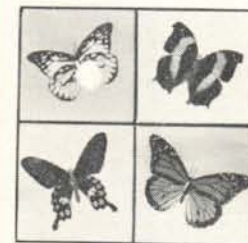
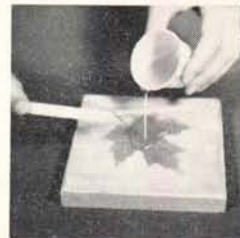
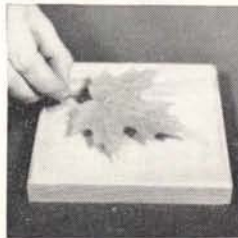
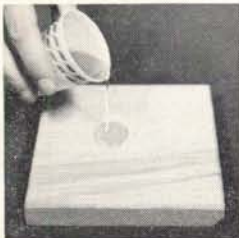
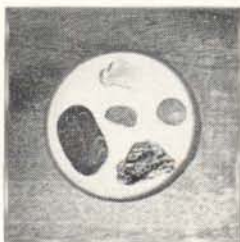
You need not confine yourself to leaves and flowers, of course. We embedded rocks we found in Switzerland and on the Mediterranean shores and coins and stamps from many lands. Photographs, too, and those delightful, spontaneous crayon sketches made by our children in school. Not only are these tiles easy to make but they cost so little . . . 15 cents for a 6x6 inch tile, not including the wood, which costs about 5 cents.

We'll be happy to tell you more about all the wonderful things you and your whole family can do with Castoglas. And, incidentally, your handcrafted articles make nice gifts . . . and it's an exciting way to raise funds for your church or club, maybe for yourself, too.

A new booklet describes this fascinating art with pictures, sketches and step-by-step directions. Please mail 25c to Dept. B-9,

THE CASTOLITE COMPANY • Woodstock, Illinois

The three photos directly below illustrate the basic embedding process. It's as easy as it looks.



New Rubber Stamp Business Pays Beginners ^{UP} _{TO} \$9.20 an hr.

START AT HOME IN SPARE TIME WITH THIS LITTLE TABLE TOP MACHINE

The multi-million dollar Rubber Stamp Business—once controlled by a few big companies—is now being taken over by small home operators—one in each community throughout the U. S. Men and women who have this inexpensive machine can turn out huge quantities of Rubber Stamps with special wording that buyers once were forced to order from big cities. Material costing only 27¢ makes a stamp that sells for \$1.80. The machine that does the work is simple and easy to operate and it turns out as many as six Rubber Stamps at a time each with different wording such as names, addresses, notices, stock numbers, prices and other "copy" needed by factories, offices and individuals. Working full capacity, it can earn as much as \$9.20 an hour for the operator! Now you can get into the big-pay business yourself with your own home as headquarters. You don't need any experience. We supply everything, including complete instructions and eight ways to get business coming in fast. We even help finance you. Cash in on the profitable Rubber Stamp business. Start making up to \$9.20 an hour from the very beginning.



**TAKES UP
ONLY 2
SQUARE FEET
OF SPACE**

WE HELP FINANCE YOUR START IN BUSINESS

● ● ● Read the complete and fascinating Rubber Stamp story in a big 110-page Book. The book is profusely illustrated with more than 100 pictures and photographs. And you can read it for a full two weeks without risking a penny of your own money!

NEW WARNER SUCCESS PLAN

Tells How to Build—Step by Step—to Big Profits and Personal Independence. Read This Plan for Two Weeks Entirely At My Risk!

In this amazing Plan you will find exact and detailed instructions for starting a Home Business in spare time—without giving up your present job and without risking the loss of a single pay check. The Warner Plan shows you—with pictures, photographs and drawings—just how to make Rubber Stamps just as good as those turned out by the big companies. It shows how to get orders without canvassing or house-to-house selling. It shows you how to expand, how to get others to work for you and how to be SURE of at least twice the money you make on your present job for a life of personal independence.

RUBBER STAMP DIVISION
1512 Jarvis Ave., Dept. R-6-A, Chicago 26, Ill.

But don't make any decision now. Read the Plan first—entirely at my risk. Then—after you have made a careful investigation—after you have talked things over with your family—only then do you decide what you want to do.

**ALL
FACTS
FREE**

Get full details which I'll send you FREE no salesman will call to urge you to buy anything. Mail coupon now—or just send a postcard—and I'll see that complete information including plan for financial help goes out to you by return mail.



**Here's what
the new
WARNER
PLAN
Tells You
about
Making Money**

1. HOW TO have fun **now** and at the same time provide for a secure and prosperous **future**.
2. HOW TO check the advantages of operating a Rubber Stamp Business in your own community.
3. HOW TO acquire a general knowledge of the business based on a brief history of the Rubber Stamp.
4. HOW TO visualize the scope of the Rubber Stamp market.
5. HOW TO make a Rubber Stamp (general outline).
6. HOW TO assess the value of Warner Equipment.
7. HOW TO get acquainted with the "Tools of your Trade."
8. HOW TO make a Rubber Stamp (Specific procedure).
9. HOW TO mount a vulcanized Rubber Stamp.
10. HOW TO make "Special" Rubber Stamps.
11. HOW TO cut plastic Matrix Board for the chase.
12. HOW TO get the right price for the Rubber stamps you make.
13. HOW TO price your complete Rubber Stamp Line.
14. HOW TO set up your workshop.
15. HOW TO get the most out of Warner's "Eight Tested Sources for Getting Business."
16. HOW TO get started on a cash outlay so small that you can get back your entire investment inside of two weeks.

YOUR NAME _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

FIRST CLASS

Permit No. 34316

Chicago, Illinois

**No
Stamp
Needed**

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

Postage Will Be Paid By

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1512 Jarvis Ave. Chicago 26, Illinois

Dept. R-6-A

Cut Coupon
on dotted
line. Fill in
name and
address.

Drop in Mail
Box. No Stamp
Needed.